
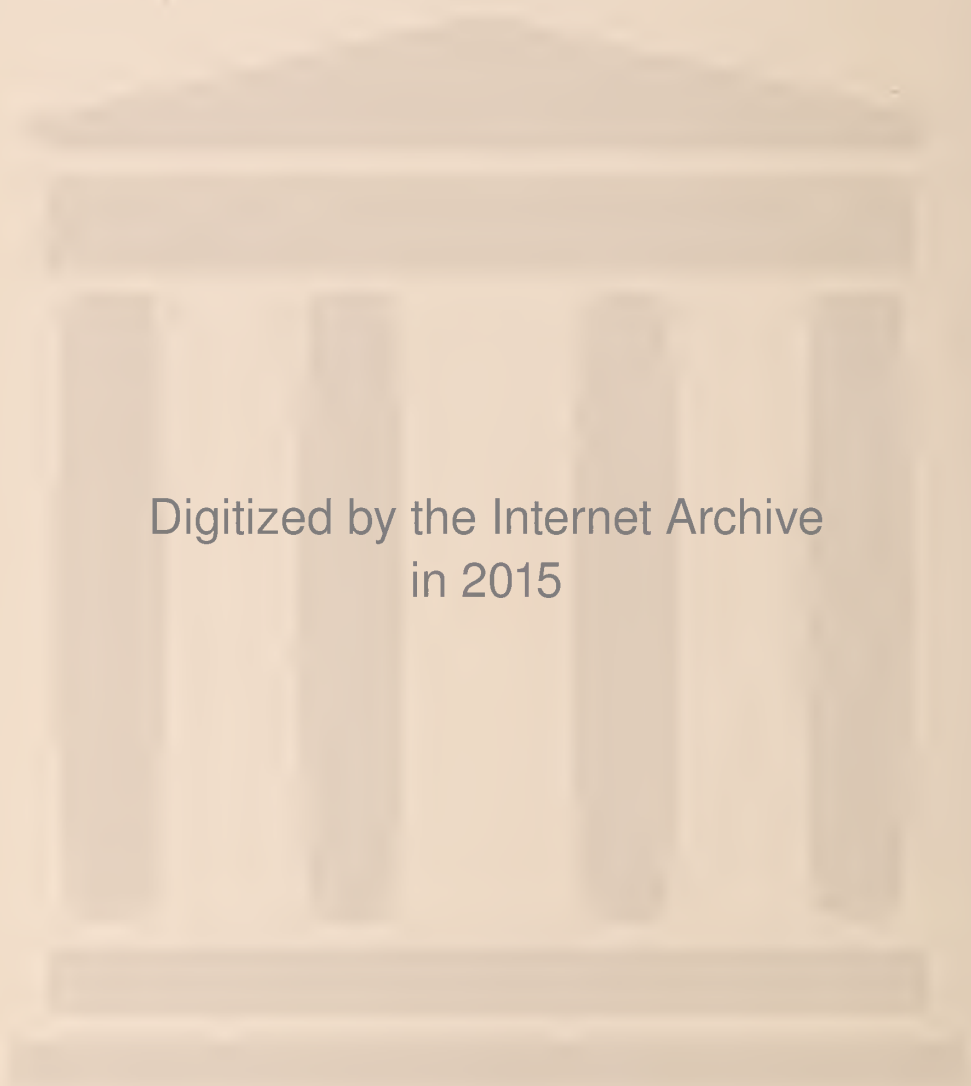


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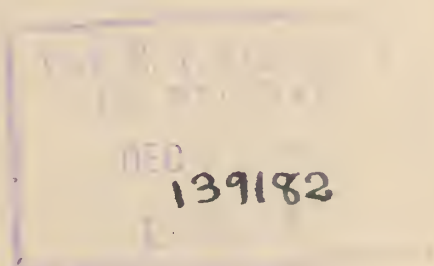
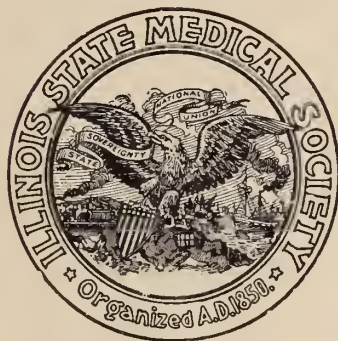
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INDEX TO VOLUME XLVII

January to June, 1925

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the titles

of papers read, officers elected, etc., can be located in proceedings under Societies, Editorials, News of the State, Marriages, Deaths. The subjects of editorials also appear alphabetically and are marked (E).

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ILLINOIS MEDICAL JOURNAL

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THE ILLINOIS STATE MEDICAL SOCIETY

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Editorial

THE TURNING-POINT YEAR—1924— MAKES POSSIBLE A CONSTRUCTIVE 1925

The capabilities and capacities of the year
1925 are of utmost moment and concern to
every one.

With exactitude the year just ended, 1924,
may well be called the "turning-point" year
whose passing has brought every one of us face
to face with what a skilled and experienced
down state physician called "A layout dead open
and shut."

A definite trend towards recovery from post-
war hysteria is supplanting many mushroom
evils. This was to have been expected in a coun-
try that is always reasonably stable.

Two outstanding notes sounded in 1924 and
that 1925 is depended upon to deepen are (1) a
long needed recess from legislative activities and
the puzzling noise of unsound lobbies, and (2) a
return to a few policies of thrift and economy.
The satiated public began realizing dimly that to
throw money broadcast lacks the thrill of gen-
uine humor. For a time the American public,
intoxicated by high wages and quick turnover,
in its exaltation tossed around cash like the
proverbial drunken sailor, both to the worthy
and the unworthy and without any discrimina-
tion.

The entrance of the year 1925 finds these
pseudo bonifaces quite in the notion to stop these
foolish largesses—in fact, ready to close up and
take a nap. Consequently, for lack of the milk
of indiscriminately dispensed cash, it is un-
doubted but that 1925 shall see many a blinking
white soft nurtured parasitic charity shrivel and
pine for lack of milk.

A FRUITFUL NEW YEAR!

As men reckon time and circumstances, an-
other unit has achieved its limit, and made way
for a successor. That the coming crowded twelve

months will bring a generous allotment of "The Land of Heart's Desire" to all the members of the medical profession, and to each of its friends is what the Editor of the ILLINOIS MEDICAL JOURNAL would have come to pass.

The one magic carpet furnishing dependable transportation to the heights of human happiness and material success as well as to ethical satisfaction continues to do business with the same old pattern, under the same old sign at the same old stand. Resolved into a common medium the result reads "*Hard work for first principles.*" This means of course the abolition of all destructive tendencies towards socialism in medicine, bureaucracy in government and the rescue of medical ethics from the encroaching bogs of selfishness, personal preferment, topheavy specialism, and poorly balanced medical education of the younger generation as well as from the venomous octopus of lay dictation of the practice of the healing arts.

Any sane American will admit that the job is heavy even for the burden bearing shoulders of doctors in the greatest country in the world. Neither one alone, nor scattered, sparse groups can poise the weight. What confronts the medical profession is the traditional "Long pull, strong pull, and pull together."

This is the time honored way of getting rid of stumps, stones, and other handicaps in a pioneer country. The Pilgrim fathers used their biceps in lieu of the dynamite of the present day.

Until a little human dynamite in the shape of a steelbound ironclad working ballot box upheaval of existing legislative conditions, made by the medical profession and its allied crafts, appears to clean out lay-dictation from the statute books, the doctors will have to content themselves with minor protest.

Already encouraging signs of revolt appear against the political yoke that makes every tenth citizen a public official and a public charge against his fellow tax payers. The signs are small and faint like the tender green of the first herbage, peeping out at the close of a January thaw. Publication of the income tax registers sounded a warning note to the ears of the most sluggish. It is not enough however to hear and realize danger in the distance.

THE THING TO DO IS TO GET OUT AND DISPLAY A LITTLE FOREHANDED-

NESS! As the early settlers in the Illinois country would remark of current conditions, not only are the barbarous braves on the warpath, but already "The Indians are howling round the stockade."

Massacre of civilization and all that this portends to the human race is imminent unless some sector of the population rises and makes defense of the humanities begotten in the tortuous years. It would seem fitting that this task should devolve upon the medical profession and truly theirs should be the responsibility if negligently these men and women, tacit guardians of the public health and welfare through their own choice and desire, shall calmly slip into the ranks of those "who having eyes see not, and having ears, hear not."

When the greatest democracy the world has ever known lay panting in its early moments of delivery that rare patriot Patrick Henry, speaking of the situation between the colonies and the mother country, remarked: "Gentlemen, it is natural for man to indulge in the illusions of hope, but I know of but one lamp by which any feet can be guided and that is the lamp of experience."

A tyrant with a power even more arbitrary than that one against which Patrick Henry pleaded has the civilized world by the throat. A plague as fierce as any Black Death that ever swept medieval Europe laps at the gates of human peace and prosperity—a spawn of the Lord of Misrule and the Queen of the Prostitution of Patriotism.

St. George is dead and cannot slay the dragon. Alexander and his Bucephalus have passed into the chasm that holds Perseus, and other heroes of mythology and antiquity. The task lies at the door of the doctor's office. None other is sought in time of stress but those who heal the body and seek to heal the mind. On every hand medicine and her acolytes find themselves expunged in part, their rights disputed and their privileges arrogated. Whose is the fault?

"God helps those who help themselves." The axiom is poignant. So too is the parable of the unworthy steward. And so while it is a fallacy to wish a happy New Year to a profession sitting by in comparative quiescence while it permits the debauchery of the greatest of the mortal arts—the healing of the sick and the preservation of

the well—truly it is but duty and kindness to say to these earnest men and women:

"The hour is here. 'The price of liberty is eternal vigilance.' The preservation of the science of medicine is vigilant protection from her professors. On the shoulders of the medical profession rests the responsibility of civilization's welfare. Only through lifting this burden, shoulder to shoulder can future happiness of any length be assured the motley mass of mortal men."

That this is done is the hope of every thinking man and woman. Through the doing will come a fruitful New Year.

THE ILLINOIS STATE MEDICAL SOCIETY MADE UNPRECEDENTED PROGRESS IN THE YEAR 1924

The influence of the medical profession in Illinois has been more stabilized during the year 1924 than during any preceding ten-year period in the history of the Illinois State Medical Society.

At least this is the contention of those who have watched, for many years, the upward struggle of organized medicine.

In view of which a brief epitome of achievement, for which the Illinois State Medical Society may claim credit, is both in order and of interest.

Judged by its concrete effect upon the medical profession in Illinois, doubtless first place must be ceded to the upholding of the constitutionality of the Medical Practice Act of 1923. Within the past month this has been upheld in detail by the Supreme Court of Illinois with the result that more complete legal safeguards than any before attained have been erected for the protection of the sick and suffering.

Next should be placed that advantage acquired recently and which Illinois shares with other states, and is derived from the new officary of the American Medical Association, including as it does new general manager, editor and trustees. We are all fortunate that there should have been chosen men of so keen an insight as to what the rank and file of the medical profession wants, and with so profound an appreciation for their needs and so scrupulous a regard for their personal and professional rights.

Perhaps the broadest opportunity which has

been opened to the men and women of the Illinois State Medical Society for 1925 lies in constructive tasks with lay organizations having interest in health, education and preservation. This means work. It means sacrifice on the part of the men and women who do the work. It means a long step forward in the campaign to raise health standards in Illinois.

New Year's day, as well as Thanksgiving day, provides things to be thankful for. New Year's day should mark an honest appraisal of both assets and liabilities, and of opportunities as well as handicaps. An organization such as the Illinois State Medical Society, dedicated to the service of science and humanity, should be frankly grateful for the chance to labor shoulder to shoulder with all who have concern for the lives of our citizens and the public health. Here, then, are specific opportunities for service. Organizations that have manifested a spirit of friendly co-operation to our suggestions and a willingness to give the best that they have of energy and devotion and faithful endeavor for the best we can give them of scientific direction and unselfish service, are many. The list includes the Illinois Federation of Women's Clubs which has entered into an agreement with the Illinois State Medical Society for constructive health work from the community angle. The Federation, through its department of Public Health and Child Welfare, is giving major place in its year's program to the stimulation of community responsibility for health. Among the projects to be fostered by 70,000 club women of Illinois with the active aid of Illinois physicians through the respective county medical societies, is a series of health conferences under the supervision and approval of these county societies.

2. The Illinois Society for Crippled Children which has entered into a formal agreement to work in conjunction with an advisory committee appointed by the council of the Illinois State Medical Society and to handle clinical work by the approval and co-operation of the county medical societies.

3. The American Exposition Palace, the world's largest and most modern exhibition building at 666 Lake Shore drive, from May 2 to May 9 will hold a National Baby Congress and Health Exposition. The promotional department of this institution states that as a

matter of good business policy this vast project could be undertaken only if its ethical, educational and scientific direction were sponsored and supervised by the Illinois State Medical Society.

4. The Illinois Manufacturers' Association which, in conjunction with the Illinois State Medical Society, has organized and is sponsoring in professional and industrial circles the Association for the Promotion of Periodical Health Examinations.

5. The Illinois Tuberculosis Association, which is co-operating closely in the conduct of its clinics, the campaign for the Periodical Health Examination, and the conduct of the School for Instruction in Tuberculosis.

6. Thirty-three superintendents of public instruction in counties, townships, and municipalities who have applied to organized medicine for assistance in the carrying on of health programs in the public schools.

7. The State Department of Health, particularly in its departments of County Health Work and Child Hygiene, which has shown a disposition to work out its programs for the coming year with the counsel and co-operation of the State Medical Society.

8. The Public Health Committee of the council of the city of Chicago, and the Chicago Department of Health, which, before putting to vote its proposed ordinance for the control of the mentally deficient, submitted this to the council of the Chicago Medical Society and through the chairman of its sub-committee, Alderman McKinlay, expressed itself as anxious to work out such measures in the way which the medical profession construed to mean the greatest public benefit procurable that is compatible with scientific advantage.

9. The Illinois Association of Graduate Nurses which, through its public health section, has shown a most constructive and friendly attitude toward educational projects launched by this society.

10. The Infant Welfare Society of Chicago, which, in its program committee, has indicated a willingness to plan with the Chicago Medical Society a joint project which shall properly care for the needy and promote the welfare of children of all classes.

The local units of the American Farm Bureau, the State Council of Parent-Teacher associations, and those various civic, social and volunteer

organizations doing health work in the state which have turned to the Illinois State Medical Society for help and guidance.

This is but the beginning of the movement which it is reasonable to believe may reach every organization in Illinois concerning itself with educational or legislative work in health, welfare work, and other methods of engaging the popular interest and support.

There is a long road ahead. It will not be an easy road. But co-operation will make the traveling possible. Already a great momentum has begun towards congenial, harmonious, forbearance, both within and without the profession, towards those achievements which count for strength and sincerity of ideals and the glory of service, not only for the year 1925, but also for those years that shall follow.

STATE MEDICAL SOCIETY TO SUPERVISE BABY CONGRESS AND HEALTH EXPOSITION

The National Baby Congress and Health Exposition that will be held in Chicago from May 2 to 9th, 1925, during National Baby Week, under the direct supervision of the Illinois State Medical Society, is an epochal undertaking of great interest and importance to the public and to the organized medical profession. This exhibition is the outgrowth of a service of conferences held between representatives of the Council of the Illinois State Medical Society and officials of the American Exposition Palace, on invitation extended by the latter.

The American Exposition Palace, an institution sponsored by and occupying the entire main floor of the new \$10,000,000 Chicago Furniture Mart, 666 Lake Shore Drive, conceived the idea of presenting a great popular health exposition, especially featuring child health, *with strict adherence to ethical and scientific standards*. The proposal was brought officially to the attention of the Council of the Illinois State Medical Society with the invitation to the Society to assume full and actual supervision of all matters affecting the medical phases of the Exposition.

Following preliminary conferences, the Council of the State Society, in special meeting at Quincy in December, 1924, approved the project in its general aspects, outlined policies to be observed, and appointed a special committee to carry on further negotiations and to effect a

definite agreement, provided that satisfactory terms were arrived at.

The Medical Committee has had numerous conferences with the officials of the American Exposition Palace with the result that a thoroughly satisfactory agreement has been reached, the outstanding points of which are as follows:

(a) The Illinois State Medical Society, through its committee, appointed by the Council, shall have full supervisory authority over all exhibits, demonstrators, programmes, etc., to the end that the exposition shall be organized and operated in full accord with ethical and scientific standards of the medical profession;

(b) The Exposition shall be operated on the "not-for-profit" plan;

(c) The Illinois State Medical Society shall not be financially obligated in any manner whatsoever.

(d) The medical committee shall have supervisory authority over the medical Director and any other official or individual attached to the exposition staff whose duties relate to or affect the medical organization or conduct of the exposition; or the publicity retro-activity.

With the preliminary arrangements completed it was deemed advisable to create a Medical Advisory Board and accordingly invitations were extended to and accepted by the following officers of our National, State and Chicago Medical Societies:

SCOPE OF EXPOSITION

Everything ethically and scientifically sound that relates to the health, comfort and safety of our people, has a logical place in this exposition. Exhibits, demonstrating programmes and conferences in which both commercial and non-commercial organizations, associations, firms and individuals will participate, will be developed in such manner as to make them of greatest educational value and general usefulness.

Invitations will be extended to all organizations, associations, institutions and individuals whose activities relate to the safeguarding and upbuilding of health and life to contribute educational exhibits. Special efforts will be made to assemble the best of such exhibits from all parts of the country.

Exhibits which may be styled "Commercial Exhibits," for want of a better designation, will embrace *approved* foods and beverages; wearing apparel; heating, ventilating, lighting and

sanitary equipment; household furnishings, appliances and utensils; athletic and sports equipment; medical, surgical and public health appliances, preparations, and equipment; insurance, life and health; public safety and life-saving devices; everything for the baby and, in fact, everything that contributes to the health and physical well-being of our people. All such exhibits will be restricted to those conforming to the standards and requirements of the Supervising Medical Committee.

A REAL OPPORTUNITY

Heretofore, expositions of this character have been operated, in most instances, with the medical profession as an incidental consideration rather than a prime factor. Naturally, full regard for ethical and scientific standards could not be expected. In most instances they have been promoted for financial profit or with some idea of political advantage. Seldom, if ever, have the educational opportunities been properly developed or fully realized. Far too often have they been taken as representing scientific medical approval with consequent disadvantage to scientific medicine.

This exposition is, therefore, the opportunity for the medical profession to place such demonstrations on a sound basis and we should accept this responsibility with the determination to see it through to a successful conclusion.

Furthermore, the fact that a great organization such as the American Exposition Palace should rest its decision to hold a baby conference and health exposition upon the approval or disapproval of the medical organization, is additional evidence that discerning organizations as well as thoughtful individuals are more and more disposed to accord the medical profession the recognition and respect to which it is rightfully entitled. It is our privilege now to demonstrate the wisdom of those so disposed.

It is, of course, the intention to make this exposition an annual event and thus to reap the greatest possible scientific advantage from its many features. For instance, to many thousands of babies, and adults, too, it will be the annual opportunity to check up on their physical status, to detect deficiencies in their early stages and to cause their correction in proper season. Needless to say, no medical treatments or prescriptions of any kind will be given in the various exposition demonstrations. It will be

an inviolable rule that the rights of the family physician shall be strictly observed and that in every instance where medical attention appears to be necessary, the subject will be referred to the family physicians for further examination and required attention. It is a certitude that strict adherence must be made to this policy if the exposition is to be a successful annual event.

Every member of the Illinois State Medical Society should take a personal interest in this exposition, the first to be presented in Illinois with full recognition of the rights, ethics, and standards of medical profession. Undoubtedly, it presents opportunity to establish popular health demonstrations on a sounder basis and to afford the public more dependable information and advice on matters pertaining to medical science, personal and public health. It merits our best efforts.

UNREST IN THE COLLEGE OF SURGEONS

The following from the *Indiana Medical Journal*, November, 1924.

There has been a growing unrest and a spirit of dissatisfaction within the ranks of the American College of Surgeons which finally ended in two petitions to the Board of Regents, signed by prominent surgeons from various parts of the country, asking for certain changes in policy and management. Among the principal complaints are the following: That too many men are admitted to Fellowship that do not meet the requirements as originally laid down by the College, and that the College should adopt more rigid tests as to character, training and intelligence of candidates; that the membership includes men who have not the highest ideals because they are either fee-splitters or generally reputed to be paying commissions under one guise or another, and that the College has made an effort to clean house; that men who have been reported unfavorably by a State Committee on Credentials have been admitted, and that these men do not measure up to the original standard and many of them are immature; that there has been too much proselyting of members and that there is too much of a tendency to build up a large organization without enough attention to the character of the men composing it; that the members of the College are not sufficiently conversant with the financial affairs of the organization and are entitled to know more in detail concerning the receipts and

expenditures; that there has been undue and distasteful publicity in connection with the clinical congress held each year.

The petitions have been given attention by the Board of Regents, who have issued a statement in which for the most part they have answered the objections made. Hereafter each member of the College will receive a printed copy of the treasurer's annual statement setting forth in detail the income and expenditures. The question of publicity is controlled by a committee, and the Board of Regents promises that publicity shall be kept within proper scientific and professional limits. The policies of the institution are formulated by the Board of Regents and carried out by the director-general who is responsible to the Board of Regents for his action. In the opinion of the Board the director-general has acted loyally, wisely, and impersonally in the interests of the College as a whole, and he is not permitted nor has he attempted to substitute his judgment for that of the Board on matters of policy.

Concerning the question of immature surgeons, the Board calls attention to the fact that seven years' experience in surgery subsequent to graduation from medical school is required by the College for admission to Fellowship. One is led to infer that there have been no infractions of this rule. The Junior Candidate plan, or as some have termed it, the waiting list of the College, has been condemned, but the Board feels that the raising of the standard of professional efficiency and professional ethics within the field of surgery will be more successful if the young men can be brought directly within the sphere of influence of the College inasmuch as professional habits, particularly those within the field of ethics, ordinarily are formed within the first few years after graduation from medical school, and during that time the College will fulfill a worthy purpose if it urges these young men to adopt these ideals of professional efficiency and propriety.

The criticism concerning the low minimum standard for hospitals that receive the approval of the College is met by the argument that an effort should be put forth to bring all of the hospitals of America up to the minimum standard before formally raising the standard. There is no specific answer to the complaint that some of the hospitals that have been admitted do not even come up to the minimum standard and do not come up to the provisions of the College which

require that membership upon the staff of hospitals be restricted to physicians and surgeons who are (a) competent in their respective fields; (b) worthy in character, and in matters of professional ethics, and that in this latter connection the practice of division of fees under any guise whatever is prohibited. As a practical method of assuring itself that the staff of a hospital does not practice the division of fees the College requires that the entire staff sign a resolution or pledge not to engage in this practice. The Board admits that in some instances it is possible that the pledges are loosely signed and that in others they are broken. The Board states that where reasonable assurance can be had that members of a staff of a hospital do practice the division of fees the College refuses approval of the hospital, or if the hospital previously has been approved, drops it from the approved list. The Board very aptly says that "the College is under both moral and legal responsibility to act upon reasonable grounds in thus disapproving hospitals." In reality the approval of a hospital is like the approval of men for membership in the College, which should be withheld when the slightest suspicion attaches to the candidates. Taking hospitals or men into organizations in order to reform them is bad business.

We are very much in sympathy with the requests in the petitions (a) that more rigid tests as to character, training and intelligence be adopted; (b) that candidates rejected by local committees be not reconsidered for from three to five years except with the sanction of the Regents; (c) that proselyting be stopped; (d) that there be immediate ejection of all those who divide fees, and announcement to the profession of such ejections. All of these complaints have received due consideration at the hands of the Board except the latter, and that presents a problem hard to solve because of the difficulty of proving that a member practices the division of fees. In this connection we feel disposed to suggest that the fee dividers of every community are known, and general suspicion seldom is unwarranted, even if actual proof is unobtainable, so that if such men are taken into the College, no matter what their promises may be, the College runs the chance of harboring within its ranks men who will not live up to their obligations. There is a trite saying that "the leopard can not change its spots," which has been paraphrased, "Once a fee divider always a fee divider."

If the petitions filed with the Board of Regents of the American College of Surgeons by a number of the most prominent surgeons in the United States bears fruit, as seems probable, and the College more strictly adheres to its published principles, we shall have cause for general approbation and appreciation, for there is a real need of an improvement in the general standards of the profession, moral as well as intellectual, and the public ought to know that there is a difference between the honest, conscientious, well-trained surgeon and the purely commercial operator. The Board of Regents can not overlook the statement in one of the petitions "that there is a widespread impression that the present membership includes men that have not the highest ideals, who are either fee splitters or generally reputed to be paying commissions under one guise or another, and there has been no evident effort to clean house." Neither can the Board overlook the assertion that there is a conviction that many of the men admitted do not measure up to the original standard and that many are immature. Furthermore, there is no use in dodging the statement that the College can take a long step to reinstate itself in the confidence of its original members by getting rid of dishonest members who are recognized as fee splitters, or those who pay commissions, and will do a distinctive service if it adopts higher standards for the recognition of hospitals, and if it pays more attention to quality and less to the quantity of work done in and by hospitals. The demand made in one of the petitions that no hospitals admitting patients of fee splitters should be approved, is worthy of consideration.

The concluding paragraph of one of the petitions is worthy of the serious consideration of the College and is as follows: "We believe that the American College of Surgeons has achieved so high a place in the profession of America that too much effort should not be given to the development of the numerical and financial strength at the expense of dignity, sound selection of members and a genuine idealism in professional standards."

PEORIA HOSPITAL PROTESTS AGAINST BEING CLASSIFIED BY THE COLLEGE OF SURGEONS

Peoria, Ill., December 15, 1924.

To The Editor: I am enclosing for publication a copy of the resolution proposed by Dr. O. W.

Simpson, and approved by the St. Francis Hospital staff at their regular monthly meeting, on November 6, 1924.

Dr. Harold A. Vonachen.

The following is the resolution:

WHEREAS: a representative of the American College of Surgeons visited the St. Francis Hospital of Peoria in June, 1924, and gave no intimation that the standard rating of the hospital would be reduced, and

WHEREAS: on Oct. 1, 1924, a telegram was received by our Reverend Mother from the Director of Hospital Activities of the American College of Surgeons, Dr. M. T. McEachern, stating that the hospital would be rated conditionally for 1925; this being the first communication received from the College of Surgeons after the visit of their representative in June, and

WHEREAS: a member of the staff of St. Francis Hospital entered into correspondence with Dr. MacEachern, a promise over his signature that the full standard rating of the Hospital would be maintained until December 15th in order that the Hospital might find out what was wanted and be given time to comply with the same, and

WHEREAS: the American College of Surgeons in violation of the promise given by its Director of Hospital Activities has caused to be printed in the public press, and in its official magazine, a surgical journal widely distributed throughout the United States and Canada, a list of hospitals, giving the St. Francis Hospital of Peoria a reduced conditional rating, therefore be it

RESOLVED: that the Staff of the St. Francis Hospital demand that the American College of Surgeons omit the name of the St. Francis Hospital from any of its lists hereafter, and be it further

RESOLVED: that if a representative of the College of Surgeons visits the Hospital that he be denied admittance and be given no information concerning the Hospital.

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LAY DIRECTION OF MEDICAL EDUCATION

The College of Medicine of the University of Illinois is a shining example of a paradox. It is run by laymen.

This situation suggests that if a layman can run the medical school, why should not this same principle be applied to the other colleges? Why not have a dentist run the school of engineering? If special fitness can be dispensed with in one of the technical departments, why not in all the others? Why not, indeed, try rotating the deans of the various colleges of the University of Illinois? This thought is commended to the president of the University of Illinois, in all good faith.

An automotive engineer who has never driven a motor car would be an anomaly. Were he to search for a position as head of the department of manufacturing design in a factory his search would be painfully fruitless. Yet this is the situation—or rather, its parallel is one of the fundamental weaknesses of current medical education.

Theorists rather than practitioners hold the reins. The mental pabulum fed the medical student is far from a balanced or even an efficient diet. The equilibrium between the laboratory and the clinical work is sadly upset. *Much* is heard of *research*, and *relatively little* of *bedside ministration*. The remedy is plain. *Medicine is not an exact science. To an even lesser degree is the practice of medicine an applied science.* One who has not learned the *practice* of medicine can hardly be expected to achieve the best results in the directing of education whose end-product is presumed to be the treatment of human ailments.

One of the monkey-wrenches thrown into the generator of efficient medical education is the Sheppard-Towner law. One of the many obnoxious feature of this law is its administration by a "bureau" composed of laymen. *The contacts of this law with juveniles are practically all of a medical nature, yet the administration of this law is in the hands of personnel devoid of medical training and to a large extent without parental experience.*

Could a condition be more absurd?

SHOULD THE MEDICAL PROFESSION
CONTINUE UNPROTESTINGLY TO
AID AND ABET THE MISCAR-
RIAGE OF JUSTICE?

THE MAXIMUM PENALTY FOR MAXIMUM CRIME
ESCAPED BY LEOPOLD AND LOEB. MEDICINE
PLAYED THE CATPAW TO PULL THE CRIM-
INALS OUT OF THE NOOSE. THE MEDICAL
EXPERT WITNESS OFTEN BRINGS DISREPUTE
UPON THE PROFESSION AND A GET-AWAY FOR
THE LAW BREAKER.

Justice, debauched by the law, stands stripped and shamed on the Illinois prairie. That the process was abetted through the technical aid of the medical profession brings to mind that famous French courtesan who finally yielded her virginal loveliness to the importunities of her kingly admirer when he entered her apartments at dead of night and "disguised as a doctor."

If ever one profession was manufactured into wholesale catspaws by another, it is the medical profession when the legal profession takes hold of it and drags it into court as an "expert witness." In fact, the "expert witness" has almost become one of the popular professions and it is assuming proportions where the menace will be as great to the welfare of the public as is that of the chiropractic and the advertising "men's disease" quack.

Slowly, but surely among the thousands of doctors who practice medicine instead of testimony there is arising a spirit of revolt calculated to throw a bomb into the bank account and the egotistical pomposity of the man whose pharmacopeia is vested in his vocabulary and whose psychological perfection can encompass the prevision of the mechanics of creation of the solar system.

For that prostitution of the science of medicine that makes of this mother science a mere handmaid of the practice of the law, both ethical and spectacular, the profession of medicine has but itself to thank. And because of this, to a certain degree the medical profession as a whole must hold itself responsible for those miscarriages of justice where the verdict of the jury or the sentence of the judge shows plainly a bias veered through the supposed expert testimony of the medical witness or the smattering of medical phraseology or angle of false medical outlook

acquired by what is in many instances a brilliant legal mind.

That a man is a brilliant or a learned lawyer does not make him even a good horse doctor, ex-officio or per cognoscenti any more than an expert surgeon is qualified to sit as judge in a hearing involving keen clear knowledge of law. As a matter of fact even in such a parallel the physician might seem to have the best of it, because ethics and logic are taught with a more thoroughness in his preparatory course than physiology is taught the student of law. The doctor handles minds and cures souls to a great extent in his every-day practice. The most learned judge is a poor exponent of the veriest "first aid" more often than he is not.

Yet in the trial of two Chicago youths, self-confessed and publicly proven guilty of one of the most appalling and revolting crimes of civilization, the long suffering back of the science of medicine was almost broken in two in order to effect a mitigation of punishment upon the two lads.

It is true that both of them were under the voting age. Yet each had passed the limit of self protection as permitted by the statutes of Illinois for its female population to possess legal protection over its type rights as vested in the so-called "age of consent" ruling which within the last fifteen years or so has been raised to the extreme limit of eighteen years. Nor was there shown anything according to the winnowing of evidence that revealed that the two culprits had had any more heart in the prosecution of their hideous violence than if they had been tying tin cans to the tail of a helpless cat. Here were two over-indulged, badly spoiled boys who had never known anything but ease and luxury and who had as successfully exhausted all normal amusement as if they were a pair of sated caliphs, old at eighteen. They were "bad boys" in the old fashioned sense, "dirty boys," if one will, filthy of mind.

Any mature individual who has ever handled growing children, whether boys or girls, learns the inevitability of the appearance of certain instincts and the necessity for proper control at the start. These two offenders against the moral law and the physical law stated that they had frequented the society of questionable women at so early an age that they were already weary of the so-called "manly vice" and that to get a

"thrill" out of life it was necessary to kidnap and murder a neighbor boy.

Whereat a great flood of medical testimony and learned opinions were let loose upon the court and avidly sucked up by a public eager for vicarious lechery. Freud, Krafft von Ebing, Havelock Ellis, modern judges and interpreters of the insane perversions of the medieval sinners were quoted from, dissected and used as stepping stones for the exploitation of men of the law, men of the expert witness type, and the edification of mobs who stormed the court room, until the senile old building itself almost gave way.

That the lads were of unsound mind, that those who kill or commit rapine should be excused if their mental forces fail to register and that a million doctors would be willing to prove it was the treadmill of debate that surged back and forth and back and forth for about one hundred and one days.

In the end the two boys were sentenced to a century in prison. They escaped the rope. Their youth and their physiology excused their psychology. Medicine, through the alienist, the analyst and the expert witness had again helped the law to turn the trick for the wealthy culprit.

At least that is the way that eighty per cent of the men in the street argue. These discussions cast no credit upon medicine as an upholder of civic rights and community protection.

The easiest thing in the world is to swear a man crazy. Those dark chambers that lie in the soul and mind of every human being, behind locks of varying security cannot be proved to their depths by present day alienists or lawyers, and when justice hinges on such dredging, justice must expect submersion in filth and chicanery.

Capital punishment is a moot question. In her adolescent days Britain used the axe with the efficacy of the Turk and his scimitar and the race prospered fairly well. It has been said in truth that what England does is to lessen the period between the commission of a crime, the proving of the offender and the punishment meted out.

If this is the reason why Britain maintains a reign of law as against what certainly has become a reign of lawlessness in many parts of America, then there can be found no fault in

this instance. The entire case was opened, heard and ended in about 101 days.

If ever capital punishment should be administered by man, wherever could be found an instance that demanded so exactly the extreme penalty? Despite all the mitigating circumstances that might be argued, pro and con, the fact remains that here, by all the laws of logic and of reason, was a case that cried out for the maximum punishment. "Leopold and Loeb" as criminals stand beyond the pale.

In the state of Illinois the maximum punishment for crime is death. As theirs was a maximum crime it is of slight righteous argument to have taken the attitude that youth was the culprits' palliating defense. Young in bodily years they may have been, but it needs no mental or medical expert to detect that in experience and mental outlook theirs was the knowledge of maturity, even though the discrimination of maturity was lacking in their biased immorality.

"Minds of men of thirty-five years," was the comment passed by psychologists who examined the young criminals. They had accomplished phenomenal mental exploits in their educational activities, but even in this they were like every traditional degenerate. Let loose in a world of beauty they could seek for, could find and cull only the monstrous, the horrific and the unclean. Out of a world of literature all they loved was what is normally unlovable, repulsive, and shocking.

The criticism that can be made in all justice and without fear of sentimentality is that the trapdoor of escape should never lie through the testimony of the expert witness at the expense of the medical profession. The law is the law and though mercy be its better part, the lawyer should be confined to the practice of law and not extend himself into the realm of medicine. His the right to plead the cause or attack the pleading of the prisoner at the bar. His NOT the slightest excuse to hamper justice with hurdles of pseudo-diagnosis and faulty premise.

That no criminal is sane at the time of commission of a major crime is a safe hypothesis for any psychologist. It is scarcely fair to assume that asylums can take the place of penal institutions, especially since the borderland between mental balance and mental askewness remains of less than hair-line extent. But it is high time

that some definite method of procedure be agreed upon—either the practice of medicine should be kept out of the court room or the court rooms should be turned over to the doctors.

Since the published gossip of a controversy about the fees for the defense, Clarence Darrow, who boasted that he would see Leopold and Loeb unhung, made a statement in the East. In effect it denied that Mr. Darrow had received a fee of a million dollars and added that he had nothing to offer on the possibility of a future pardon for the two since "Leopold and Loeb are incurably insane and hence there is no likelihood of them being pardoned from the penitentiary and return to community life."

What a howl from coast to coast would arise at such a statute! The lawyer fleeced of his wig and perquisites! Heavenly torts and assizes! Yet that is exactly what is happening today in every state in the land. Medicine is taken from the hospital, the dispensary, and the physician's office and practiced in the court room for the benefit of the wealthy degenerate, or drunkard, or the sharp lawyer who wants that personal exploitation and subsequent aggrandizement that comes from "between-the-eyes" advertising.

So much plain, brothel filth has rarely been poured over the court records of a city as was literally pitchforked, like liquid manure, through the hearings of this case. At the end the two offenders suffered scarcely more of a sentence than has been given burglars, safe-crackers or plain yegg men whose crimes against society have been confined to the theft or destruction of material or man-made things, and who have never taken another human's life. Young boys no older than these two, and boys who have stolen or broken the law merely for enough to eat, for a place to sleep, or for clothing to cover them, have been more bitterly arraigned and almost as severely sentenced. The answer is that such seeming discrimination is virile pay for anarchy. The medical profession should refuse to be an abettor.

RESOLUTIONS PASSED BY THE COUNCIL OF THE STATE MEDICAL SOCIETY, DECEMBER, 1924

Resolution on the conduct of clinics, a resolution on the treatment of children as sponsored by the Rotary Clubs; Resolution opposing the Child Labor Amendment, Resolution on Public

Health Legislation, Declaration of Principles by the Illinois State Medical Society covering the conduct of clinics in Illinois.

Preamble: Definition of Clinic.

For the purpose for which this declaration is made, the word "Clinic" shall be defined and classified as follows:

(1) A free clinic for the benefit of the indigent poor. These clinics shall be either under direction of, or by consent of, the local county medical society.

Physicians shall give their services gratis, to which service only the indigent poor shall be entitled.

(2) Clinics for the benefit of the profession. These clinics shall be either under the direction of or by the consent of the local county medical society. The prime object of these clinics shall be for the instruction and guidance of the physician and to which he may bring his private cases.

Physicians conducting clinics of any nature must conform to the same ethical rules as one in private practice and will be held accountable for his conduct by his local medical society. . . . see Section 4 and 8, Article 2, Principles of Medical Ethics of the A. M. A.

Each local society must decide as to the policy of its clinics, make its own rules, and see that said rules are enforced.

Suggestions:

(1) The Illinois State Medical Society does, and the local county medical societies should discourage the use of the word "clinic" for any other purpose than those mentioned in the Declaration of Principles, referring particularly to the use of the word "clinic" by any single physician or group of physicians in their private practice.

(2) The Illinois State Medical Society should have supervision over all so-called "Baby Shows" or "Baby Conferenees" held in the state of Illinois. These shows or conferences should be under the direct supervision of the local medical society in the county in which they are held.

(3) While it is not deemed necessary to have the teaching clinics of medical schools under the direction of the local medical society, we believe all medical schools should use the utmost discretion in the selection of their cases, thereby eliminating all these cases except the indigent poor.

(4) As it must be decided who are the "indi-

gent poor," we believe that a basis of discrimination can be set up on two points—

- (a) Income;
- (b) Dependents.

RESOLUTION ON THE TREATMENT OF CRIPPLED CHILDREN AS SPONSORED BY THE ROTARY CLUBS

On October 17, 1924, committees representing the Illinois Society for Crippled Children and the Council of the Illinois State Medical Society met in joint conference, in the Hotel La Salle, Chicago.

Pursuant to a discussion which is mutually felt to have been free and unreserved, this joint committee agrees to and recommends to its respective principals that:

1. The Illinois State Medical Society provide an advisory council which shall consist of five members in good standing, whose duty it shall be to co-operate with, counsel and advise the executives and board of directors of the Illinois Society for Crippled Children on all methods of procedure in medical matters.

2. Any work undertaken under this proposal shall avoid the professional aggrandizement of any individual or group of individuals; and that it shall studiously avoid the pauperization of the public.

3. If clinics be held in any locality in Illinois, they be held in conjunction with the local component unit of the Illinois State Medical Society.

In view of which, this report is submitted with a joint recommendation for the adoption of the spirit and the substance of its letter.

RESOLUTION AGAINST THE CHILD LABOR AMENDMENT

WHEREAS, Congress has passed an amendment to the Constitution which would give that body power to "limit, regulate and prohibit the labor of persons under eighteen years" and the ramification of this action is now before the state legislatures, and,

WHEREAS, This amendment will interfere with parental control from the viewpoints of industry, thrift and character and will substitute federal bureaucratic control by remote, expensive and irresponsible authorities, and,

WHEREAS, Such regulation will breed idleness and crime, and

WHEREAS, Such regulation is in violation of principles set forth in the Constitution and that such legislation should be left to the several states;

Be It Resolved, Therefore, that, we, the — do hereby go on record as opposed to the ratification of the 20th Amendment to the Constitution.

RESOLUTION ON PUBLIC HEALTH LEGISLATION

1. The State Society is vitally intrusted in the public health of the state.

2. The need of more efficient and adequate preventive health service in many communities.

3. The county rather than the township and village is the proper unit for health supervision under the direction of full time medical health officers.

The society believes in the greatest amount of decentralization of authority compatible with efficiency and that the position of health officers should be safeguarded from improper political interference.

County Health Officers should devote their entire time to the duties of their office and should not be permitted to engage in the private practice of medicine.

Before a county system of health work can be inaugurated enabling legislation is necessary.

MEDICAL PRACTICE ACT OF 1923 DE- CLARED CONSTITUTIONAL BY ILLINOIS SUPREME COURT

The Supreme Court of Illinois has just handed down an important opinion, holding the Illinois Medical Practice act of 1923 constitutional. The attack on the constitutionality of the statute was made by Darrow, Sissman, Holly & Carlin, who represented Edwin F. Witte, who had been convicted in the Municipal Court of Chicago of unlawfully practicing the healing art without having first secured a license under the act of 1923. The constitutionality of the act was presented to the court by Harry Eugene Kelly.

In its opinion the court took up all of the alleged discriminatory features and disposed of them as untenable. The court approved the theory upon which the act was drawn and passed by the legislature. This opinion clarifies the law

relative to the education of doctors in Illinois as it has not been clarified heretofore.

Published herewith is the court's full opinion, which should be read in its entirety, and the publication of which renders further comment at this time unnecessary.

THE PEOPLE OF THE STATE OF ILLINOIS
V. EDWIN F. WITTE

MR. JUSTICE DE YOUNG delivered the opinion of the court:

An amended information was filed in the municipal court of Chicago which charged that Edwin F. Witte on October 24, 1923, treated Anna Nemas for an ailment by a system or method known as naprapathy, without a license to do so. A motion to quash the amended information on the ground that the statute upon which it was based is unconstitutional was denied. A jury trial followed. From the prosecution's evidence it appeared that Anna Nemas was afflicted with rheumatism; that she called on Witte, who after interrogating her concerning her ailment, gave her twelve treatments, which consisted solely of a manipulation of the spine, and for which she was charged \$25. The defendant admitted that he had no license to treat human ailments. He offered to prove by Dr. H. M. Hess, president of the American Naprapathic Association, that there were about 450 persons in the United States who practiced naprapathy; that it is a drugless system of treating human ailments, discovered in 1905; that the theory underlying it is that many of the ailments of the human body are due to a tightened or shrunk condition of a ligament; that such condition is referred to as a ligatight, and where it takes place near a nerve it brings a mechanical tension on that nerve and induces an abnormal function, and that the conception of ligatights as a causative factor of human ailments is peculiar to the system of naprapathy and is one of its fundamental principles. The offer included a statement of the subjects taught in the College of Naprapathy and of the courses of study required for the graduation of its students. An objection to the offer was sustained. The jury found the defendant guilty and a judgment imposing fine of \$500 was entered. He prosecutes this writ of error on the ground that the constitutionality of the Medical Practice act is involved.

The State, in the exercise of the police power, has the right to regulate any and all occupations for the protection of the lives and health of the people. All measures and regulations for that purpose which do not infringe upon constitutional rights are within the scope of the police power. Within constitutional limits the General Assembly is the sole judge of the laws that shall be enacted for the protection of the public health, and so long as such laws do not invade inherent or constitutional rights the determination of the General Assembly is conclusive. The right of a citizen to practice medicine is subject to the paramount power of the State to impose such regulations, within the

limitations of the constitution, as may be required to protect the people against ignorance, incapacity, deception or fraud in the practice of that profession. But the measures adopted must be reasonably necessary and appropriate for the accomplishment of legitimate objects within the domain of the police power. *People v. Kane*, 288 Ill., 235.

Careful preparation is required of one who enters the medical profession. No one has, or ought to have, the right to practice medicine who does not possess the necessary skill and learning. The physician must not only be able to detect readily the presence of a disease, but also to ascertain its nature or character and to prescribe appropriate remedies for its cure. Many may have occasion to consult a physician but few are able to determine his qualifications. Reliance in this respect must therefore be placed upon an assurance, usually in the form of a license granted by competent authority. Consideration for the protection of society has led many states to exclude from the practice of medicine those who, upon an examination, have been found not qualified therefor.

The General Assembly, in framing the Medical Practice act, was confronted by the necessity of applying its provisions to the schools of medicine or medical practice now existing and to those which might arise from time to time. It was impossible to formulate a statute with particular reference to each. A plan of regulation was provided in a single, comprehensive enactment applicable alike to all schools, present and future. The plan divides licenses, (Cahill's Stat. 1923, sec. 11, pp. 2214, 2215), so far as physicians are concerned, into two classes, one of which confers the right to practice medicine in all of its branches, and the other to treat human ailments without the use of drugs or medicines and without operative surgery, the licensee under such a license to be restricted by its terms to the practice of the system or method which he specifically designated in his application as the one he would undertake to practice.

The plaintiff in error contends that the act offends against the constitution because it is arbitrarily discriminatory in five particulars. The first is, that a graduate of a medical school who has passed the examination prescribed by section 8 may practice any system of drugless healing although he has never been examined concerning his qualifications to practice such system, while a person licensed to practice one of the systems which makes no use of drugs is not permitted to practice any other drugless method or the regular system without taking the course of study prescribed by section 5 and passing the examination required by section 8. The General Assembly was under the necessity of establishing some standard which would qualify a physician to practice generally without limitation, because specialists in every particular disease or form of treatment could not be found in every part of the State. In many rural districts the physician is compelled to treat every human ailment. This was a condition which confronted the legislature and had to be met by suitable provisions in a regulatory statute. It

regarded the use of drugs and medicines and operative surgery as the most dangerous of the remedial agents likely to be employed by a physician, and for that reason it made those agents the dividing line between a practitioner authorized to treat any disease by whatever remedy he might choose, and a practitioner authorized to practice any system or method of treating human ailments without the use of drugs or medicines and without operative surgery. The unrestricted practitioner is necessarily permitted to employ the same agencies for healing as are used by the restricted practitioner. The practitioner with an unrestricted license has a choice of methods of treatment, but there is no distinction between the two classes of practitioners as to the diseases which they may treat. The act makes no reference to any method of healing or to any school by name. The fact that one group of practitioners qualifying under a higher standard may use the same methods of treatment which the other group employs is not a discrimination. The difference between the respective rights of the two groups is based on a corresponding difference in attainments. The physician who has a license to practice medicine in all of its branches has complied with the requirements for such a license, while the naprapath, or any other drugless practitioner, by his own act, has restricted himself to certain remedial agents the employment of which is not regarded by the legislature as sufficient to qualify him to treat every disease by every known remedial agent possibly applicable to it. The practitioner who possesses a restricted license voluntarily imposed upon himself the limitations under which he practices. If he wishes to practice medicine in all of its branches he is permitted by sections 12 and 12a (Cahill's Stat. 1923, p. 2215), to qualify himself for an unrestricted license precisely as others do. The division of licenses into two classes is based upon substantial differences in the attainments of the licensees, and we cannot say that the classification is either unreasonable or discriminatory.

The second contention that the act is arbitrarily discriminatory is, that a drugless practitioner cannot be licensed to practice surgery without taking a course in materia medica, therapeutics and practice, even though the school teaching his system gives a course in surgery equal in all respects to that given by the medical school. The practice of surgery requires the use of antiseptics, anaesthetics and other drugs and medicines. Hence the legislature required instruction in drugs and medicines as a necessary qualification to enable a physician to perform a surgical operation. In its judgment no person ought to be permitted to practice surgery without showing a knowledge of drugs and medicines. The act requires the examining authorities to give full credit to a course in surgery taught in a school of naprapathy. By section 12 of the act (Cahill's Stat. 1923, p. 2215), a person licensed to practice any system or method of treating human ailments without the use of drugs or medicines and without operative surgery is permitted to obtain an unlimited license, and the additional courses of study

required of such a person may be taken in a medical college or in "any professional school, college or institution teaching any system or method of treating human ailments." The naprapathic college under this section has equal rights with the medical college. The right accorded a naprapath, or any other person treating human ailments without the use of drugs or medicines and without operative surgery, to qualify himself to practice surgery and to acquire his instruction and training in surgery in his own kind of professional school is fully established by the act. The second contention of plaintiff in error cannot be sustained.

The third contention that the act is arbitrarily discriminatory is, that it provides by section 12 that any person licensed under the provision of the act to practice without the use of drugs or medicines and without operative surgery may be permitted to take examinations in certain subjects to secure an unlimited license, but that this privilege is not extended to persons holding limited licenses under any prior statute. The act does not limit to persons who obtain restricted licenses under it the right of qualifying themselves for unlimited licenses by completing the necessary additional courses of study. Section 22 (Cahill's Stat. 1923, p. 2219), provides: "All licenses and certificates heretofore legally issued by authority of law in this State permitting the holder thereof to practice medicine, or to treat human ailments in any other manner, or to practice midwifery, and valid and in full force and effect on the taking effect of this act, shall have the same force and effect, and be subject to the same authority of the department to revoke or suspend them, as licenses issued under this act." Hence any person, under whatever act he may have secured a restricted license, may qualify himself, under the provisions of section 12, to practice medicine in all of its branches. The act is not discriminatory in the respect claimed.

The fourth contention of plaintiff in error that the act is arbitrarily discriminatory is, that under the provisions of section 5, sub-section 1a, a graduate from a medical college prior to the passage of the act, on proof of having completed a four years' course in a high school, may take the examination for a license to practice medicine in all of its branches, including surgery, while under sections 12 and 12a a graduate of a school teaching a drugless system, who graduated prior to the passage of the act, may not take an examination for a license which will permit him to practice surgery, unless, in addition to taking a course in medicine and surgery which will make his course of study equal to that of the medical schools, he can show that he has completed a two years' college course or that he has been engaged in the active practice of his profession for five years. By sub-section 1b of section 5 of the act an applicant for a license to practice medicine in all of its branches, who is a graduate of a medical college after the passage of the act, must show that such medical college, at the time of his graduation, required, as a prerequisite to admission thereto a two years' course of instruction in a college of liberal arts or its equivalent. An applicant for a

license to practice any system or method of treating human ailments without the use of drugs or medicines and without operative surgery who is a graduate of a school in which the particular system or method of treatment is taught, whether before or after the passage of the act, is not required to show any instruction whatever in any college of liberal arts. If a person chooses to fit himself for a particular system or method of treating human ailments and to limit his practice thereto the choice is voluntarily made. The educational requirements for such practice are not equal to those prescribed for the unrestricted practice of medicine. A practitioner who has a restricted license under the present or any prior act is permitted to qualify himself for the practice of medicine in all of its branches. Such additional preparation, made or completed after the passage of the act, necessarily is governed by its provisions. The graduate of a medical college after the passage of the act is required to show, in addition to his graduation from a medical college, a two years' course of instruction in a college of liberal arts. The limited practitioner who seeks an unrestricted license should also show the same preliminary education. The ultimate requirements are the same in both cases. The route of one is direct by graduation from a medical college; of the other it is indirect—first by fitting himself for the treatment of human ailments by restricted methods, and later by completing courses of instruction equivalent to those taken by the graduate of a medical college. There is no arbitrary discrimination in the particular charged.

The last contention of the plaintiff in error that the act is arbitrarily discriminatory is, that section 37 provides that the act shall not apply to dentists, pharmacists, optometrists or other persons lawfully carrying on their particular profession or business under any law of the State regulatory thereof, nor to persons treating human ailments by prayer or spiritual means as an exercise or enjoyment of religious freedom. When the medical practice act became effective there were in force in this State statutes regulating dentists, pharmacists and optometrists. These statutes regulatory of these several professions or occupations were left unamended. The law-making bodies of various States have found sufficient differences between physicians, dentists, pharmacists and optometrists to regulate them by different acts. The exemption is not without limitations, but only to the extent that the persons mentioned lawfully pursue "their particular profession or business under any valid existing act of this State regulatory thereof." All persons are subject to the Medical Practice act, including dentists, pharmacists and optometrists, but they are permitted to practice their professions under the particular statutes applicable to them, and are exempt from the provisions of the Medical Practice act only to the extent that they are included within the dental, pharmacy and optometry acts, respectively. The exemption of persons treating human ailments by prayer or spiritual means is limited to those who do so as an exercise or enjoyment of religious freedom. It finds justification in the third

section of the bill of rights. The exemptions created by section 37 are not unreasonable.

Plaintiff in error finally contends that the act is unconstitutional because it attempts to delegate legislative power to the Department of Registration and Education in the following particulars: (a) By section 6 the course of instruction in high schools or other schools, and colleges of liberal arts, required by any medical college or professional school, college or institution, shall be such as shall be satisfactory to the department; and (b) by the third sub-section of section 19 the department shall have power to determine the standard of literary or scientific colleges, high schools, seminaries, normal schools, preparatory schools, graded schools and the like, in the discharge of its duties. These sections of the act are not the only applicable provisions. Section 7 requires that all examinations provided for by the act shall be conducted under rules and regulations prescribed from time to time by the department. The ninth section provides that the examinations of applicants who seek to practice any system or method of treating human ailments without the use of drugs or medicines and without operative surgery shall be the same as required of applicants who seek to practice medicine in all of its branches, excepting therefrom materia medica, therapeutics, surgery, obstetrics, and theory and practice. The first sub-section of section 19 requires the department to make rules for establishing reasonable minimum standards of educational requirements to be observed by medical colleges, or by any professional school, college or institution teaching any system or method of treating human ailments. By the 20th section it is provided that the provisions of the act shall not be so construed as to discriminate against any system or method of treating human ailments, or against any medical college or any professional school, college or institution teaching any system or method of treating human ailments, on account of any such system or method which may be taught or emphasized in such medical college or in any such professional school, college or institution. Hence the act requires the making of rules and regulations under which all examinations shall be conducted; it enjoins uniformity in examinations, so far as their nature will permit; it imposes the duty of making rules for establishing reasonable minimum standards of educational requirements, and it expressly prohibits discrimination against any system or method of treating human ailments or against any medical school or college whatever. The department is not permitted, under the act, arbitrarily to prescribe minimum standards of educational requirements nor conduct examinations of applicants for licenses according to its arbitrary whim or caprice. The rules and regulations promulgated by the department are subject to review by the courts to determine whether or not they are reasonable. (*Kettles v. People*, 221 Ill., 221.) It cannot be presumed that the powers conferred upon the department will be exercised arbitrarily. Until the contrary is shown, courts indulge the presumption that public officers perform

their duties without discrimination and without exercising their powers arbitrarily. (*Douglas v. Noble*, 261 U. S., 165.) The act itself (section 5) fixes minimum standards of professional education to be enforced by the department in conducting examinations and issuing licenses. Moreover, the limitations of the act within which the department must perform its duties exempt the act from the charge that it delegates legislative power in the particulars specified.

The judgment of the municipal court of Chicago will be affirmed.

Judgment affirmed.

DUNCAN, C. J. and FARMER, J., dissenting.

SEND ON THE PAPERS FOR THE SURGICAL SECTION

Surgeons wishing to read papers at the forthcoming meeting of the Illinois State Medical Society, at Quincy, May 19, 20 and 21, 1925, kindly communicate with Dr. Ben D. Baird, Galesburg, chairman of the section on surgery.

PAPERS TO BE READ BEFORE THE ILLINOIS STATE MEDICAL SOCIETY

Doctors wishing to read papers before the Illinois State Medical Society at Quincy, May, 1925, should communicate with officers of the respective sections as follows:

Officers of Sections, Illinois State Medical
Society, 1924-25

SECTION ON MEDICINE

J. H. Hutton, M.D., 6056 Cottage Grove Ave.,
Chicago, Chairman.

B. V. McClanahan, M.D., Galesburg, Secretary.

SECTION ON SURGERY

Ben D. Baird, M.D., Galesburg, Chairman.

Philip H. Kreuscher, M.D., 30 N. Michigan Ave.,
Chicago, Secretary.

SECTION ON EYE, EAR, NOSE AND THROAT

W. R. Fringer, M.D., Rockford, Chairman.

Chas. M. Robertson, 30 N. Michigan Ave., Secre-
tary.

SECTION ON PUBLIC HEALTH AND HYGIENE

D. J. Lynch, M.D., 6205 Broadway, Chicago,
Chairman.

C. H. Diehl, M.D., Effingham, Secretary.

SECRETARIES CONFERENCE

W. C. Blaine, M.D., Tuscola, President.

J. S. Templeton, Pinckneyville, M.D., Secretary.

ILLINOIS' FIRST LICENSED WOMAN PHYSICIAN

Few Illinois physicians know that the first woman licensed to practice medicine in Illinois was a Quincyian. Dr. Abby Fox Rooney enjoys that honor. She practiced medicine for many years in Quincy with her husband, Dr. Michael Rooney. In 1895 she was elected President of the Adams County Medical Society. Dr. Fox Rooney has been living in California for a number of years, her husband being dead. She has a son who is practicing medicine. Recently she celebrated her eightieth anniversary and the Society sent her the following telegram on the occasion:

"Dr. Abby Fox Rooney,
737 S. Westlake Ave.,
Los Angeles, Calif.

The Adams County Medical Society at a regular meeting held last evening sends its most hearty congratulations to you on your eightieth birthday. As the first woman physician in Illinois to be licensed to practice medicine and as a former president of this society we are proud of you.

ADAMS COUNTY MEDICAL SOCIETY."

IMPORTANT ANNOUNCEMENT

PRESIDENT COOLIDGE ISSUES PROCLAMATION BAS-
ING DUTY ON BARBITAL AND BARBITAL-
SODIUM UPON AMERICAN
VALUATION

On November 14, 1924, the President, following the unanimous recommendations of the United States Tariff Commission, proclaimed that "to encourage industries in the United States, and for other purposes," the duty on diethylbarbituric acid and its salts, known as Barbitol and Barbitol-Sodium in this country, and which are chemically identified with Veronal and Veronal-Sodium, be computed upon the American valuation instead of the foreign valuation.

This is the first action of the President under the flexible tariff provision approval by Congress in 1922, in which the principle of American valuation has been put into effect.

Application was made for change two years ago by The Abbott Laboratories, the only manufacturer in the United States making and marketing Barbitol and Barbitol-Sodium exclusively under the American names. After a thorough investigation by the Tariff Commission covering the

comparative costs of production, in this country and abroad, the decision was unanimous that the duties then existing on Barbitol were inadequate and recommendation was made to the President for an increase.

The Abbott Laboratories has been manufacturing Barbitol continuously since 1918.

Announcement has already been made of a reduction in the price of Barbitol and Barbitol-Sodium by them to the medical profession.

TOUR OF AMERICAN PHYSICIANS TO CANADA, BRITISH ISLES AND FRANCE, 1925

Information pertaining to the Inter-State Post Graduate Assembly Clinic tour of American physicians to Canada, British Isles and France, 1925, with extension tours to the leading medical centers of Europe. Under the direction of the Managing-Director's office of the Inter-State Post Graduate Assembly of America, Freeport, Illinois.

ANNOUNCEMENT

The clinics and demonstrations connected with this tour will include all the different branches and specialties of medical science. It will be our utmost endeavor to see that every branch of medicine receives the same consideration on the program. This announcement is only an early synopsis of the good things that are in store for the American physicians and does not in any way represent the complete program of the tour, therefore, if you do not find the branch of medicine in which you are interested represented in this report, you can rest assured that it will receive it proper importance on the program.

May 17. Tour starts from Chicago by special train. Physicians living in territory where it will be more convenient to go direct to Toronto will be provided with transportation direct to this city in time for the clinics beginning May 18.

May 18, 19—Toronto. We spend May 18 and 19 as guests of the teaching staff of the Toronto University, Faculty of Medicine. Special clinics will be arranged covering the different branches of medical science by this Institution.

May 20 Trip through the Thousand Islands and the St. Lawrence Rapids.

May 21, 22—Montreal. We spend May 21 and 22 as the guests of the teaching staff of McGill University, Faculty of Medicine. The clinics in Montreal are in charge of this Institution. Those who wish to join the tour at Montreal on the evening of May 22, receive a reduction of \$110.00 from the price of the tour.

May 23. Early A. M. sail for Liverpool, arriving in that city May 31st.

SHIP PROGRAM

An intensive professional trans-Atlantic program for the benefit of the physicians who are taking advantage of the tour will take place on board ship and will be contributed to by some of America's most distinguished physicians and surgeons.

June 1 to 7—London. June 1 to 7, the time is spent in London. The clinic arrangements in this city are under the direction of the Honorary Organizer, Mr. Philip Franklin, Honorary Secretary of the Laryngological section of the Royal Society of Medicine and medical director of the American Hospital, London; Sir Humphry Rolleston, Bt.; Sir John Bland Sutton, President of the Royal College of Surgeons; Sir William Arbuthnot Lane, Bt.; Sir St. Clair Thomson, President of the Royal Society of Medicine; Sir William Hale White, Retiring President of the Royal Society of Medicine; Mr. H. I. Waring, Vice-Chancellor of the University of London and Mr. W. Girling Ball.

Special social features of the London program will include the conferring of the honorary membership of the Association upon the Duke of York at the opening ceremony, which will be held at Barnes Hall, Royal Society of Medicine and the conferring of Honorary Memberships upon the Prime Minister, the Rt. Hon. Stanley Baldwin; the Minister of Foreign Affairs, Rt. Hon. Austin Chamberlain; the Minister of Health, Rt. Hon. Neville Chamberlain; Sir Auckland Geddes; The American Ambassador; the Lord Mayor of London, Sir Humphry Rolleston, Bt., President of the Royal College of physicians; Sir John Bland Sutton, President of the Royal College of Surgeons and Sir St. Clair Thomson, President of the Royal Society of Medicine.

Receptions and luncheons will be given by the Lord Mayor of London, the Presidents of the Royal Societies of Medicine and Surgery, the English-Speaking Union, the Pilgrim's Society, American Chamber of Commerce and members of the British Government.

Intensive professional programs will be carried on at all the leading hospitals of London and at the headquarters of the Association, which will be at the home of the Royal College of Medicine, 1 Wimpole Street.

June 8, 9, 10.—Liverpool, Manchester, Leeds. June 8, 9, 10, the party is to be divided and alternated among the clinics of Liverpool, Manchester and Leeds.

At Liverpool the physicians will be the guests of the staffs of all the large hospitals of that city under the direction of Sir Robert Jones, R. E. Kelly and colleagues. Clinic arrangements are now in formation.

At Manchester the clinic group will be the guests of the staff of the Royal Infirmary. Sir William Milligan and associates are arranging the clinics.

At Leeds the physicians will be the guests of the University of Leeds. Clinic arrangements are in charge of Sir Berkeley Moynihan and associates.

June 11, 12.—Dublin. The American physicians will travel to Dublin, where arrangements are under the general management of Sir William DeCourcy Wheeler, Sir William Taylor, Sir Arthur Ball, Sir Robert Woods and their colleagues. All the Irish members of the Association of Surgeons of Great Britain and Ireland will co-operate in forming the program for the American physicians.

June 13, 14, 15—Belfast. From Dublin the physicians go to Belfast. Here they are the guests of the teaching staff of Queen's University. The following

committee of arrangements has been appointed and accepted to arrange clinics and demonstrations:

Professor Andrew Fullerton, Mr. Thomas Sinclair, Prof. W. W. D. Thomas, Prof. R. J. Johnston, Prof. C. J. Lowry, Prof. J. E. MacIllwain, Dr. A. J. Craig, Dr. H. Hanna, Prof. Squimmers, Dr. Thomas Houston and Dr. S. Boyd Campbell.

In presenting the clinics and demonstrations the teaching staff of Queen's University will be associated with that of the Royal Victoria Hospital.

June 16, 17—Glasgow. From Belfast we continue to Glasgow, where the clinics are now being arranged by Mr. Farquhar Macrae, Mr. J. H. Pringle, Dr. Findlay Cowan and Dr. John Patrick and their colleagues. On these dates excursions will be run to Ayr for families of the doctors and their friends.

June 18, 19—Edinburgh. Here the American physicians will be the guests of the Royal Infirmary of Edinburgh under the direction of Sir Harold Stiles, Sir Norman Walker, Sir Robert Philip and associates on the staff of the Royal Infirmary. A very excellent program is being arranged here.

June 20—Newcastle and University of Durham. Clinics will be held by the Honorary Staffs of the Newcastle-upon-Tyne Royal Infirmary and the Princess Mary Maternity Hospital, Pensions Hospital, Children's Hospital and some of the special hospitals in the city. The arrangements here will be in charge of Sir Rutherford Morrison, Mr. George Grey Turner, F. R. C. S., and other members of the staffs of the hospitals and clinics of this city.

Demonstrations will be given at the University of Durham College of Medicine (which is located in Newcastle-upon-Tyne) and probably at Armstrong College.

June 21 to 27—Paris. June 21 the entire party will leave for Paris via London.

June 22 to 27 the time will be spent in Paris. The clinic arrangements are under the direction of a large number of the most eminent members of the profession both medical and surgical, including Professors Tuffier, Drs. De Martel, Gosset and Delbert in surgery; Drs. Sebilean de Fourmentel and Lermoye in Oto-Rhino-Laryngologie; Drs. Vital, Chauffard, Sergeant, Levaditi and Martin in medicine, and Prof. Morax and Delapersonne in ophthalmologie.

Headquarters for the American physicians will be at the Franco-American Club, Champs Elysée, where the physicians will be entertained by our hosts. General information and programs of the clinics will be given out here.

Among the numerous social functions of Paris are the following: A reception given on June 22nd by the Academy of Medicine; a large reception given in honor of the American physicians by the Municipal Council of Paris at the Hotel de Ville (City Hall); an evening reception by the Inter-Allied Assembly and a reception by Prof. Tuffier at his country home, which is located near Versailles.

Honorary Memberships will be conferred upon distinguished Statesmen, Soldiers and citizens of France.

Besides the clinics and social features, there will be wonderful travel features.

Paris will be the end of the regular tour, but there will also be a sailing home a week later allowing the American physicians, their families and friends to stay a longer time in Paris with more extensive sight-seeing and giving the physicians the opportunity to attend the clinics at Strasbourg and Lyon, where elaborate clinics are now being prepared for their benefit. This part of the tour will be given at the lowest possible cost in addition to the regular tour.

	Chicago to Chicago	Montreal to Montreal or New York
(c) with first-class, high grade hotels and cabin ocean passages	\$990.00	\$889.00
(b) with first-class, medium grade hotels and cabin ocean passages	910.00	800.00
(a) with moderate priced hotels and third-class ocean passages	750.00	640.00
Medium grade hotels, third-class on steamers, \$635.00.		

The last classification is offered to doctors and medical students who are desirous of having the chance to avail themselves of the wonderful clinic opportunities of the tour. As this Association is purely an educational institution and is working for the medical profession as a whole, the Board of Trustees decided at its annual meeting that this class should be included.

EXTENSION TOURS

The opportunity will be given to the physicians subsequently to the main tour to visit practically all the main clinic centers of Europe, through extension tours, conducted by the Temple Tours of Boston under the direction of this office.

It is necessary in order to hold space for the tour to send to the office of the Managing-Director the sum of \$65.00 per person. If for any reasons the applicant for space decides that he cannot take the tour, the money will be refunded immediately, if this demand is made within six weeks of sailing time. The reservations will be assigned and preference given on the ship and in the hotels in the order they are received, accompanied with check for \$65.00 per person.

This tour is open to members of the profession who are in good standing in their State or Provincial Societies and their families. No restriction of territory. This invitation is understood to be extended to Canadian physicians as well as those of the United States. The Association will also be able to take care of a limited number of lay friends of the physicians. This is possible on account of their not requiring clinic space.

Members of the party who are specialists and who wish to devote their entire time abroad to their special

work, will have the option of spending in London and Paris the time taken up by the tour to northern England, Ireland and Scotland.

Clinics in all the special branches are being arranged by the management of the Inter-State Post Graduate Assembly expressly for these men to be held in London June 8 to 14 and in Paris, June 15 to 21.

For further information, write Dr. W. B. Peck, Freeport, Illinois.

OFFICERS OF THE TOUR

President—Dr. Charles H. Mayo, Rochester, Minn.
Chairman of the Orientation Committee—Dr. Addison C. Page, Des Moines, Iowa.

Director of the Tour—Dr. William B. Peck, Freeport, Ill.

Secretary—Dr. Edwin Henes, Jr., Milwaukee, Wis.
American Advisory Committee on Clinic Arrangements:

Dr. William J. Mayo, Mayo Clinic, President of Clinics, Rochester, Minn.

Dr. Edward William Archibald, Prof. of Surgery, McGill University, Faculty of Medicine, Montreal, Canada.

Dr. Walter W. Chipman, Prof. of Obstetrics and Gynecology, McGill University, Faculty of Medicine, Montreal, Canada.

Dr. George W. Crile, Prof. of Surgery, Western Reserve University, School of Medicine, Cleveland, Ohio.

Dr. John B. Deaver, Prof. of Surgery, University of Pennsylvania, School of Medicine, Philadelphia, Pa.

Dr. John M. T. Finney, Prof. of Surgery, Johns Hopkins University, Medical Department, Baltimore, Md.

Dr. Duncan A. L. Graham, Prof. of Medicine and Clinical Medicine, University of Toronto, Faculty of Medicine, Toronto, Canada.

Dr. Allen B. Kanavel, Prof. of Surgery, Northwestern University, School of Medicine, Chicago, Illinois.

Dr. Charles F. Martin, Prof. of Medicine, McGill University, Faculty of Medicine, Montreal, Canada.

Dr. Charles H. Mayo, Mayo Clinic, Rochester, Minn.

Dr. Alexander Primrose, Dean and Prof. of Clinical Surgery, University of Toronto, Faculty of Medicine, Toronto, Canada.

Dr. Clarence L. Starr, Prof. of Surgery, University of Toronto, Faculty of Medicine, Toronto, Canada.

HE LIVED TO TELL ABOUT IT

It was late at night. No one seemed to be about, and the poor woman, making her first ocean trip, was very, very sick. She thought that if she could only get up to the deck for a few minutes, the fresh air would help her recover. So, quite scantily clad, she made her way out of her room and started to crawl up the steps. She was entirely too sick to walk. Half way up the stairs she met an equally seasick man, coming down. She gave a feeble, very feeble, scream of embarrassment.

"Do not worry, my dear madam," groaned the man, very, very feebly, too. "I shall never live to tell about it."

GNORRHEA—"AS WAS AND AS IS"*

By JOHN G. CLEM, M.D.

LOUISVILLE, KY.

As a disease gonorrhea is perhaps singular in that, despite its history and ancient recognition, only recently has it come to be regarded as a highly important and dangerous malady. What was once considered by the average layman and many members of the medical profession as a trivial affection is now known to be a scourge capable of inflicting its victim with all the horrors that Dante discovered in Hades, besides sharing a few of the choice torments with the innocent wife and baby. Gynecologists maintain that gonorrhea has unsexed more women than all other diseases combined, while pediatricians recruited an army of blind babies every year or two!

Men whose temples have not yet been silvered by the frost of time can vividly recall the fact that their physicians of yesterday regarded gonorrhea as a joke, and were rendered services that often indeed were a burlesque. All the treatment thought necessary was to "dry up" the discharge, and this was accomplished largely by internal remedies and "shotgun" prescriptions for astringent injections to be used by the patient "with any old syringe that would squirt anywhere from the external meatus to the remote parts of the posterior urethra;" and the patient was always instructed to return for more medicine if the quantity originally prescribed failed to "make the interior of his penis as dry as Sahara." To paraphrase the sarcasm of Shylock: "O, doctor, you knew not the etiology of stricture"; and I recall that on several public occasions Colonel Robert G. Ingersoll declared that: "Hell was paved with good intentions."

The complications which almost invariably followed such unscientific and ineffective methods of treatment were regarded as an aggravated form of the disease. Many physicians refused to accept patients suffering with gonorrhea, because of discouraging results obtained, while the victims wandered from doctor to doctor seeking relief. This lack of interest on part of the medical profession produced ideal conditions for the quacks to flourish. In all large centers of population these vultures roosted above their anatomical museums gorging their pocketbooks with money obtained by methods which gave them "an ace in the hole" compared with the clumsy efforts of common crooks in trying to work flim-flam games. Their dens were post-graduate schools for shyster lawyers, blackmailers, pickpockets, and "thieving pimps." One of this motly crew lived in an exclusive Philadelphia suburb, was a member of several country clubs, operated a chain of pseudo-anatomical museums and maintained quack offices from coast to coast that furnished employment for a small army of renegade physicians. This medical "gangrene" was exposed to the laity by a police court reporter for the *Chicago Tribune*,—who had been "tangoing on the primrose path" and ultimately became involved in a financial fight with his

*Read before the Louisville Urological Society, Louisville, Kentucky.

scoundrel doctor,—when a garnishee came to the office which proved to be the “wallop that started the knock-out” for all advertising venereal quacks. After this lone reporter “started the racket,” the *Tribune* was seconded by *Collier's Weekly*, and the battle royal quickly became a national affair with the quack taking the full count!

For years Dr. Prince A. Morrow, of New York, and Dr. G. Frank Lydston, of Chicago, had written articles in an effort to arouse the medical profession to realize the serious nature of gonorrhea. They slowly recruited converts among their medical friends; but only a few short years before their death did the renaissance period of urology begin and the proper perspective of gonorrhea really dawn upon the profession.

Contrasting the conditions of yesterday with those of today, it is almost beyond belief how difficult is the fight to place gonorrhea in its proper light before physician and patient. Unless properly treated and cured, it can be the harbinger of more fatal consequences than any other disease known to medical science,—disregarding, of course, epidemics of certain contagious diseases. The fact alone that it progresses quietly, insidiously and secretly, stamps it as most dangerous. It has been stated, and not infrequently by members of the profession, that to have syphilis is far preferable than gonorrhea. I am firm in the belief that this construction has reference not to the direct effects of gonorrhea but to the indirect consequences which will invariably follow if improperly treated. And may I add, in parenthesis, that personally I would prefer to pay ardent court to gonorrhea than flirt with syphilis?

Among the initiated and observant gonorrhea today presents problems which have caused considerable agitation by word as well as pen. Pleas for more careful and rigid treatment have appeared from time to time in nearly every medical journal in the country. A busy general practitioner, even if competent to treat the disease properly, cannot be expected to devote the time and study to its problems which it merits. A careful study of every case of gonorrhea and its progress is absolutely necessary to attain a successful cure.

With the certain knowledge today of the cause, course and prognosis of gonorrhea, it becomes imperative that a careful routine be followed in its treatment. It is not only necessary to diagnose the disease, but also to be fully informed as to its extent. Idiosyncrasies play an important part in medicine and particularly in gonorrhea. We know that prostatic involvement occurs in a large, if not the larger, percentage of cases. Faulty technique or negligence of the physician may be largely responsible in many cases, but who can say whether it might be avoided in every instance no matter how careful the treatment nor how expert the physician? The urethra furnishes a fertile soil for the rapid multiplying of gonococci, and the best method of treatment is oftentimes not quick enough to inhibit their growth and migration to the frontiers of the urogenital system. The inflammatory process fre-

quently extends to the epididymes and testes in spite of all efforts to prevent it; but it is safe to assert that, due to his experience, the urologist shows a much smaller percentage of complications than the general practitioner. This is neither a slight nor a boast, but the natural consequence of study and practice. The prostate has become an important point of interest in the course of gonorrhea, because of its close relationship to the disease itself and the persistence with which gonococci deposit themselves in the various crypts and sinuses of the organ and there remain for undetermined periods regardless of many efforts to dislodge them. Prostatic massage is frequently the only means of removing the gonococci and for relief of the congestion; but its employment by untutored and too vigorous hands has resulted in far greater damage than the original disease. Hence, again, the plea for more careful study of every symptom and more intelligent treatment of gonorrhea.

Most patients applying to the urologist for the treatment of gonorrhea have been previously furnished,—by “damfool” friends, barbers, “soda jerkers,” and a few instances the neighborhood druggist,—with a “sure-thing-cure”; consequently in the majority of cases there already exists an anteroposterior or chronic urethritis with prostatic involvement. Each case may require different and careful treatment, more or less prolonged, and to carelessly obtain the history of the patient, and in addition carelessly administer some astringent injection with balsamic capsules for internal use, is nothing less than criminal.

It should be the duty of every physician,—one which is never shirked by urologists,—to diligently instruct the patient and explain to him the many dangers which lurk behind his affliction; if he be married, and this is often the case, the danger of infecting his wife and of making her a lifelong invalid should be impressed upon his mind and conscience. Sexual intercourse must be positively prohibited until the last possibility of infection has been eradicated. And just here I wish to say a few words regarding the latter feature: Opinions have been expressed that gonorrhea cannot be cured. I believe it would be more to the point to say that possibly some cases of gonorrhea cannot be cured. There are probably cases which, in spite of intelligent care and attention, resist all treatment.

It is, of course, essential that every available clinical and laboratory test be repeatedly employed before giving any decision whatsoever. Haphazard and snap judgments, whether favorable or otherwise, are dangerous, and therefore it should be a matter of conscience to be right, as nearly as possible, before instituting treatment or pronouncing the patient cured.

As to the method of treatment: It is my firm belief and conviction that the only method to pursue in the treatment of gonorrhea is the one with which the individual urologist has had the greatest success, and which in his judgment is best suited for that particular case.

Starks Building.

Original Articles

PRECANCEROUS ERUPTIONS OF THE SKIN*

FRANK CROZER KNOWLES, M.D.

Professor of Dermatology, Jefferson Medical College
PHILADELPHIA, PA.

Bloodgate states that every case of cancer of the skin of which he has a complete record originated from some abnormality of the skin, and not from normal epidermis.

Maud Slye, as the result of her prolonged and painstaking selective breeding experiments in mice, makes the following statement: "What seems to be transmitted in cancer is the potentiality of the germ plasm to produce an individual whose tissues shall proliferate in the lawless fashion of the neoplasm, under a given provocation. All my observations in this laboratory tend to show that the provocation is over-irritation at the point where the cancer occurs."

Hartzell regards "it as fairly well demonstrated that carcinoma results from a profound and more or less permanent alteration of the mechanism of cell division. This alteration may, in my opinion, result from long-continued irritation of a mechanical or chemical kind, including under this latter the effects of toxins resulting from micro-organisms. Accordingly it seems likely that the immediate causes of cancers are multiple."

Fordyce has drawn practically the same conclusion: "A study of skin cancers suggests to the observer, if it does not demonstrate absolutely, that no one agent is concerned in the malignant proliferation of epithelial tumors and that cutaneous carcinomata have a multiple etiology."

The experience of the writer coincides with the deductions drawn by the authorities just mentioned. Cancer of the skin does not arise from the normal integument but one that is pathologic.

Engman states that the clinical factors which predispose the skin to cancer are: 1, senility; 2, actinism; 3, chemical trauma; 4, mechanical trauma; and 5, chronic inflammatory disease.

Numerous derangements of the skin predispose to a malignant change. Hazen gives the list of precancerous dermatoses as follows: Pigmented

moles; seborrheic warts; simple keratosis; arsenical keratosis; keratosis follicularis; cutaneous horn; cancer of paraffin workers; xeroderma pigmentosum; sailor's skin; farmer's cancer; x-ray dermatitis; Paget's disease; Marjolin's ulcer; Lupus vulgaris; leg ulcers; lupus erythematosus; blastomycosis; syphilis; inflammatory dermatoses; sinuses; wens; nevi; papillomas.

Volkman in considering the predisposing causes of cancer of the extremities divides the cause into three groups. In the first group were placed those cases developing upon chronically inflamed tissue, as a result of ulcers, scars, fistulae, osteomyelitis, lupus, etc. The second group comprises cases developing upon warts or moles, either congenital or acquired in later years. The third group included cases arising in apparently normal skin.

Von Brunn, using the Volkmann classification, in a series of 321 cases, found that 227 could be placed in the first group, 46 in the second, and 48 in the third.

New growths of the skin, congenital or acquired, after a longer or shorter duration as benign affections, may become cancerous; warts and the pigmented naevi showing the greatest tendency to such a change. Volkmann collected 223 cases of carcinoma of the extremities, 23 of these, or a trifle more than ten per cent. had their origin in congenital or acquired warts. Pigmented epithelioma originating in the pigmented naevus is among the most malignant of the new growths.

Certain forms of keratosis are apt to be followed by cancer of the skin. These keratoses are such as are common after middle age—cutaneous horns and the brownish or black patches seen so frequently on the faces and on the back of the hands in the aged. As is well known, patches of senile keratosis are very often the forerunners of carcinoma.

Senile keratosis or so-called "old age skin" is of such frequent occurrence that all physicians should be familiar with the condition. Small yellowish, reddish or brownish areas develop on the exposed portions of the skin—the face, neck and the backs of the hands. These areas are spoken of popularly by the laity as "liver spots." These discolorations become larger and the surface comes roughened. The scale is first greasy yellow, then brownish in color. The scale becomes more elevated, rougher, dark in color and

*Read before the Inter-State Assembly of the Tri-State District Medical Association, Des Moines, Iowa, Oct. 29, 30, 31 and Nov. 1, 1923.

warty. In a considerable number of instances the warty covering tends to break down, ulceration occurs and cancer supervenes.

According to Harris, although these keratotic lesions are much more common in the aged, they occur often as early as the second decade. The one factor which seems to play an important role is light. Bellini examined 100 old people from the country and found that 42 per cent. had these lesions compared to 13 per cent. in the old persons in town. Dubreuilh found in 162 cases of senile keratosis 101 were habitually exposed to sun and wind, while 61 had a sedentary occupation.

Arsenical Keratosis: As long ago as 1851, Romberg described an affection of the palms and soles characterized by epidermic desquamation, due to the internal administration of arsenic. Erasmus Wilson in 1873 mentioned that in addition to this desquamation, thickening of the epidermis of the palms and soles and small "corns" may result from the ingestion of this drug. Sir Jonathan Hutchinson first pointed out the relationship between arsenic administration and the subsequent development of epithelioma or keratoses.

Wile up to 1912 found 15 cases of epithelioma following the internal administration of arsenic and four additional cases in which this drug had presumably been given. Three other cases were recorded by Geyer as occurring among the inhabitants of Reichenstein (Germany). These individuals lived near the arsenic mines, imbibing this drug through the drinking water.

Harris found thirty-one cases of arsenical cancer reported in the literature up to 1918. In one-half of these cases there were multiple lesions. The upper extremities were affected in two-thirds of the cases, the lower in one-quarter. In only one case was the face affected. The growth is always of the spino-celled type.

Wile concludes that the occurrence of epithelioma, following the use of arsenic is in all probability the result of several factors:

A. The chemical action of arsenic acting as a protoplasmic irritant leading to the production of tissue especially liable to malignant degeneration.

B. The irritation and trauma to which precancerous lesions (keratoses) are constantly subjected.

C. The occurrence in most of the subjects of

arsenical cancer, of a pre-existing chronic disorder and abnormality of the epithelial covering.

Cancer of Tar and Paraffin Workers: Some years ago Volkmann called attention to a peculiar inflammation of the skin occurring in workers in tar and paraffin, which showed a special predisposition to be followed by carcinoma. This paraffin dermatitis is characterized by red, oozing patches resembling an eczema, by lesions of the type seen in psoriasis, and follicular inflammation resembling acne. The skin tends to become dry and fissured, the mouths of the sebaceous gland-ducts are widely dilated and filled with blackish masses and wart-like growths develop which may become malignant. Certain individuals show a marked susceptibility to the outbreak while others are apparently immune. Schamberg has recorded several instances and reviews the literature up to 1910. B. F. Davis thinks the cause is probably a chemical irritant.

Percival Pott, described in 1775 a form of cancer (chimney-sweep's cancer) which followed a dermatitis of the scrotum due to the irritation of soot, which was almost identical with the paraffin dermatitis of Volkmann.

Rayer refers to a similar affection occurring upon the scrotum in smelters of arsenic ores.

Sachs reported a remarkable occurrence of warts and warty eczema on the hands of those working in aniline dyes. His experimental investigations with animals (rabbits) confirmed the property of these dyes to induce granulation and epithelioma-like excrescences, which may undergo degeneration.

Cancer of Sailors and Farmers: Individuals who are much exposed to weather and sun tend to show certain changes in the skin. Seafaring men, farmers, gardeners, etc., are prone to show the condition. The salt of the sea, wind, such climatic condition on land as low relative humidity of the atmosphere (dryness), and an extreme amount of sunlight are causal.

A diffuse cyanotic redness or deep bronzing of the skin develops, followed by pigmented spots (freckles) and occasionally some loss of pigment between these hyperpigmented areas. Telangiectases develop, the skin becomes dry, hard and wart-like lesions appear. The condition may last for years but there is a distinct tendency for epithelioma to develop.

Hyde has thoroughly considered this type of outbreak, and emphasized how frequently rodent

ulcers (epithelioma) develop upon these warty lesions.

Lawrence recorded the frequency of rodent ulcers developing in "farmers' skin" in Australia. Out of 6,000 consecutive cases in his clinic 1.8 per cent., or 108 cases, showed this condition.

Lupus Carcinoma: Carcinoma developing in lupus vulgaris is an uncommon occurrence. Sequeira states that it occurs in 2 per cent. of lupus cases. In 964 cases of this disease in the London Hospital he found 2.87 per cent. were complicated by carcinoma. Bargues reported its occurrence in 3 per cent. Ashihara collected 125 from the literature and later Silverstein was able to collect 116 additional cases.

Carcinoma developed in lupus cases after the tuberculous invasion had lasted over twenty years in Sequeira cases; the average was thirty years in those collected by Ashihara; while Silverstein reported an average of twenty-nine years.

Besbonnets, in a monograph upon lupus and epithelioma, has collected ninety cases of lupus, reported by thirty-seven observers, in which epithelioma occurred.

There has been a great deal of discussion as to whether the carcinoma originates in lupus or in scar tissue. Kembachief and Bidault consider that it only develops in scar tissue. Eckerman combined the statistics of several writers, and concluded that in 70 per cent. of the cases the carcinoma started in lupus tissue. In Silverstein's series of 111 cases there were eighteen in which multiple lesions had become malignant.

Mendes da Costa, Bargues, Walker and others believed the use of roentgen ray in the treatment of lupus favors the development of carcinoma. Spiegler says that the number of cases has increased since the introduction of the roentgen rays. Coenen states that roentgen rayed lupus cases represent more than one-half of the cases of roentgen ray carcinoma.

There are probably several factors which operate to cause the development of carcinoma in lupus vulgaris. They are chronic ulceration, old age, roentgen rays and light rays.

Other forms of cutaneous tuberculosis, such as the warty type (tuberculosis cutis verrucosa) may terminate in epithelioma. Hartzell has reported such an instance.

The development of cancer in erythematous lupus is far rarer than in lupus vulgaris. Harris

referred to five writers who had reported such instances.

The ulcerating lesions of tertiary syphilis, in rare instances, became the seat of cancer. Lang and Doutrelepon have both reported cases of this character.

Harris and also Bloodgood have reported instances in which cancer has supervened in cases of blastomycosis.

Chronic leg ulcer serves as the starting point for carcinoma of the lower extremities in a very considerable proportion of cases. Volkmann found that in cancer of the lower extremities, more than ten per cent. of 223 cases began as a leg ulcer.

Roentgen ray Cancer: This condition was observed much more frequently in the early days of roentgen ray therapy, before the need of protecting the operator and the patient was fully realized. The backs of the hands were most frequently involved by the condition due to the actinic rays of the Roentgen tube.

Freckle-like spots develop and superficial telangiectases, the skin becomes dry, rough and loses its secretion, and the hairs fall out. Small horny growths develop on the pigmented areas, ulcerations and finally epitheliomata tend to develop.

Cicatrix Carcinoma: Marjolin first called attention to the occurrence of carcinoma in scar tissue. According to Heidingsfeld, the French authors have described under the term "carcinoma epitheliale cicatricans," a form of epithelioma that takes its origin from preexisting scar tissue. Epithelioma with derivation from scar tissue is not an infrequent clinical occurrence.

Strictly interpreted, this type of cancer embraced those forms which spring essentially from old healed-out scar-tissue, clinically dissociated from the process (burn, injury, syphilis, tuberculosis, etc.) which originally produced it. The cicatrization must represent a past process, no longer in a state of active formation.

It would embrace the chronic resistant, indolent ulcerations which slowly enlarge in circumference and increase in depth, presenting glistening indurated everted edges, which spring from long standing and extensively cicatrized areas.

Carcinoma *épipitheliale cicatricans* develops in its most typical form from the thoroughly healed out cicatrices of old extensive burns.

This variety of epithelioma arises from chronic

cicatrizing dermatoses (lupus, lupus erythematosus, syphilis, leukoplakia, etc.), as well as deep extensive scars and atrophies from new growths, trauma, and the Roentgen-ray.

The predominating histologic type of skin cancer on scar tissue is a spinous-cell epithelioma.

According to Maxwell, in the Vale of Cashmere epithelioma is endemic, the number of cases in one year at the Mission Dispensary being 1.24 per cent. of all diseases treated. Of 54 cases 27 were upon the abdominal wall, and 15 upon the thigh, unusual situations for this disease. The great prevalence of the malady, and its unusual situation are attributed to the frequency of burns in the regions most affected. The natives are in the habit of carrying braziers filled with burning charcoal beneath their clothes, in contact with the skin of the abdomen, and burns are frequent. The cicatrices from these often become the starting-point of epithelioma.

Bloodgood states that out of forty cases of cutaneous sarcoma, thirty-two originated from distinct lesions, usually the scars of burns.

Hartzell makes the statement, "As to the influence of long-continued irritation, I am only in doubt as to whether it should be placed among the predisposing or directly exciting causes of carcinoma; I have no doubt that in many cases it is directly or indirectly concerned in the production of the disease." A familiar example of this mode of origin is the so-called pipe-smoker's cancer of the lip resulting from the continued irritation caused by the stem of the pipe. Hansemann relates a very remarkable and instructive instance of this kind. A man who was accustomed to carry his pipe on the right side of the mouth developed an epithelioma in that situation. This was excised, and the patient then carried his pipe upon the left side. After a time a new carcinomatous lesion appeared upon the left side, followed by granular metastasis. This could hardly have been the result of mere coincidence.

Lowenthal has collected 800 cases of malignant tumor, including 119 cases of cancer of the skin and mucous membranes, in which an injury preceded the appearance of the neoplasm.

While a single traumatism may be followed by a cancer, such a result is at least infrequent. Wurtz found among 174 squamous cell epitheliomas only 8 that arose after single traumatism.

The sources of epithelial tumors are as follows: 1, the various layers of the epidermis; 2, the hair

follicles; 3, the sebaceous glands; 4, the sweat glands; 5, the sweat ducts; and 6, congenitally misplaced epithelial structures or cells.

The writer thoroughly agrees with Hazen's description of the microscopic appearance of the skin which signifies a malignant development. "The criterion of malignancy is the breaking through of the basal membrane by the epithelial cells. This basal membrane normally forms the limit of the epithelial cells, thus separating them from the fibrous tissue of the corium. Invasion, once the corium membrane is ruptured, may take place in one of several ways. The cancer cells may invade practically en masse, in more or less solid alveoli, in long alveoli, in branched projections, singly or in small groups."

Atypical mitotic figures are a marked characteristic of cancer cells. Degeneration of these cells, most frequently of the hyaline variety is typical.

Bowen in his paper on "precancerous dermatoses," states that "all of these conditions have in common a slowly increasing epithelial hypertrophy characterized by a hyperkeratosis (except in the case of Paget's disease), well marked as a rule and showing itself as one of the earliest clinical manifestations; by a pronounced proliferation of the rete Malpighii, accompanied by karyokinetic figures; and by a vacuolization and degenerative changes in the epithelial cells that are more or less characteristic. Connective-tissue changes are apparently present in all, but except in the case of the x-ray dermatitis, this feature has not been so prominently mentioned."

There has been a general trend, in recent years, to divide these various epithelial growths into the prickle-cell and basal-cell types of epithelioma. The former arising from the prickle-cell layer, just above the basal cells of the epidermis; and the latter taking its origin from the basal cell layer, or from similar cells of the hair follicle.

Epitheliomata developing on the face usually have their origin in the basal cells of the epidermis while those developing elsewhere on the skin surface and the mucous membranes take their origin from the prickle-cell layer.

The former do not tend to cause metastasis, the reverse is true of the latter.

The following deductions may be drawn:

1. Lesions on the skin, particularly of the pigmented or warty type should be removed.
2. Recurring traumata should be avoided.

3. Arsenic should not be given over too long a period or in excessive dosage.

4. Systematic examinations of and greater cleanliness should be employed by individuals in certain trades.

5. The excessive exposure to sunlight should be avoided or the individual properly protected.

6. Care should be exercised against the actinic rays from the Roentgen tube.

7. Differentiation should be made between the basal cell and prickle cell type of cancer, as the former does not metastasize while the reverse is true of the latter.

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THE MOST RECENT ADVANCES IN THE SURGERY OF TRIGEMINAL NEURALGIA MAJOR*

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Before beginning the discussion of the surgery of true trigeminal neuralgia it is only right and fitting that I should briefly discuss the disease itself. We call it a disease, but I believe it is really a symptom. However, the disease of which it is a symptom is as clear cut a clinical entity among the diseases of the head and face as is typhoid fever among the abdominal diseases.

Luckily it is not a common disease, but unfortunately for those who have it, it is one of the most terribly painful diseases that human flesh is heir to, and also until quite recently it has been one of the most rebellious to treatment. The disease is of such rarity that an ordinary practitioner seeing fifteen to thirty patients daily may run through a course of ten years and not encounter more than two or three cases of this disease.

If one has ever had a case of true trigeminal neuralgia major he will have indelibly impressed

on his memory the vivid picture of this disease and, in fact, if one has ever read or heard a description of the disease he ought to have no difficulty in making a correct diagnosis should he ever encounter a case and it is extremely important that a correct diagnosis be made, for if the diagnosis is right and proper treatment instituted the cure of the disease is positive and permanent.

The patients are male or female in about equal proportion—the age is usually more than thirty-five, although a case in a child of nine has been recently reported, and I have successfully operated on a patient of eighty-three years. It generally attacks those who up to that time have been in perfectly good health. There is no single etiologic factor or no combinations of them. Heredity plays no part. Syphilis has been blamed, but I do not believe that syphilis is more common among those who have true trigeminal neuralgia major. Arteriosclerosis has been blamed for much late in life and when first the ganglion was removed it was seen that many of the ganglia showed sclerotic vessels. This is not surprising because most of the patients are well beyond fifty-five years before seeking operation. I believe the sclerosis seen was simply a part of the general arteriosclerosis. We know it occurs in people who do not have arteriosclerosis.

Bad teeth are supposed by some to be a factor in the etiology and usually many of the teeth are extracted to cure the disease—without avail, of course. The fact that the pain begins most frequently in the middle and lower divisions does lend some color to the supposition; however, it does attack those who have no dental disease and it does begin in the first division and treatment directed to the teeth does not produce a cure. Occupation plays no role, neither does station in life.

The story is that the patient in his usual health going about in the usual way is suddenly stricken by a very severe sharp pain at some point in the fifth nerve area. Usually this point is in the part supplied by the middle division; in the naso-labial furrow or in the upper lip are the favorite points of origin. Sometimes inside the month, the side of the tongue, floor of the mouth or a spot on the inner side of the cheek is the point where the pain first strikes.

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From this point, with tremendous and increasing severity it ranges over the side of the head and face from the chin to the vertex; the whole half of head and face seems to be afflicted. The patient grasps the part or rubs it or writhes in agony or groans aloud. Often the side of the face is congested during the attack and tears run from the eye. Usually the paroxysm is over, disappearing as suddenly as it came, in less than a minute, though it may endure for longer; and now there is complete relief from pain of any kind until the next spasm, which may come within a few minutes or may be deferred for an hour or more. I had one patient who had his first spasm in the morning, his second the next day.

There are various things which precipitate a spasm—anything hot or cold in the mouth, swallowing, speaking, a blast of cold air, a bright light, touching the spot at which the pain begins and sometimes touching various other spots in the distribution of the nerve. The patient in order to avoid it refuses food or chews on the other side of the mouth or takes only liquids and often fails to shave or wash the affected side of the face.

The paroxysms recur for a few days, and, strange to say, it is rare for them to occur at night, especially in the early attacks. After a few days the attack is over and the patient is normal again until the next one. The next attack will come perhaps in six months or a year, but it will return sooner or later, and this time it will probably remain longer and the patient thinks the paroxysms are more severe. Gradually the interval between attacks shortens and the duration of the attack is longer. I have had several who said the last attack had lasted for several months and those complained that they were unable to sleep without some kind of hypnotic. Many of the patients find relief only in some form of opiate and unrelieved the patients are sometimes driven to suicide.

Such is the story of true trigeminal neuralgia major, disease without any known etiology, without any known pathology, but for which there is a known and certain cure.

There are many neuralgiae about the head and face; nearly all are of minor type, and it is a serious thing to make a mistake in the diagnosis. About the most rebellious form of neuralgia that I have seen is that type described by Sluder of

St. Louis in 1909: in this the pain begins about the root of the nose and ranges across the face below the orbit to the ear and down the side of the neck and even down the shoulder and arm. It, too, comes in recurrent attacks, and like true trigeminal neuralgia major, it, too, has paroxysmal features, however, the rule is that there is not complete freedom from pain between the paroxysms as there is in true trigeminal neuralgia major. Then, too, in this disease there is often a tender and painful spot just medial to the base of the mastoid on the affected side, a thing which never happens in trigeminal neuralgia major. Again in this neuralgia described by Sluder, Sluder discovered by applying cocaine to the lateral wall of the nasal chamber in the region of the posterior end of the middle turbinate that he could allay the pain, a thing that can never be done with true trigeminal neuralgia major.

I know of a case in which there is recurrent neuralgia, spasmodic, with freedom from pain between spasms, first on one side of the head and then on the other, but always in the auricular temporal distribution. The pain in this case has always been relieved by the rhinologist who finds an inflamed area high up in the sphenoidal region, but in sinus disease the usual thing is an aching, bursting, constant pain, with remissions and sometimes freedom for hours, especially after changing the position of the body.

The roentgenologist and rhinologist should always be consulted if there is the slightest doubt as to the nature of the disease and in addition one should not fail to make a thorough examination of the throat and mouth. I have seen a neuralgia due to cancer between the tongue and tonsil that was treated for trigeminal neuralgia for several months before the real disease was discovered.

My subject is the surgery of the disease and there are three surgical procedures which may be mentioned in the treatment of trigeminal neuralgia major; 1. For its palliation—the deep injection of alcohol into the division involved where it leaves the skull; and 2, for its permanent cure the sectioning of the sensory root of the fifth nerve proximal to the ganglion; or 3, the removal of the ganglion itself.

Alcohol injection does give relief—at first. Usually after the first injection the period of relief is longest and after each succeeding

injection recurrence comes more quickly. One cannot tell how lasting the relief is likely to be. I have some who were injected in 1911 who are still free from recurrence. The rule is, however, for the attack to recur in a year or less. The procedure is not free from danger. I have lost an eye following alcohol injection. I have seen many patients who had lost the hearing and I have recently had a patient who not only lost the hearing but also had a suppurating mastoiditis develop shortly after an alcohol injection. She had to be operated on for the mastoid condition before we could do the root section for the neuralgia. Compared with root section under local anesthesia I believe alcohol injection is at least quite as dangerous, perhaps a little more so.

Surgery of the fifth nerve for long was confined to simple sectioning of the branch involved, then to removal of sections of the same and finally Thiersch carried out the removal of root and branch of the division involved. It was early noticed that the higher up sectioning was done the longer was freedom from recurrence. In 1884, Mears of Philadelphia suggested removal of the Gasserian ganglion for trigeminal neuralgia. This was first done in 1890 by Rose, a pupil of Horsley in England. At that time it was the custom to remove the upper jaw for the cure of neuralgia in the middle division and Rose obtained the consent of the patient to bore through the base of the skull after removal of the jaw. The patient lived and was cured. Later Horsley removed the ganglion, opening the dura at the side and lifting up the brain. This patient died.

An American surgeon, Hartley of New York, in 1891 opened the skull at the side using the osteo-plastic flap devised by Wagner. He then lifted up the dura and removed the ganglion. His case was successful. A month or so later he showed the patient at the New York Surgical Society and described his method and published his case in March, 1892. Krause, a German surgeon, some months later published an article describing the self same method with records of four cases. The method was for long that used in this country and is known, just why I cannot tell, as the Hartley-Krause method.

French surgeons popularized what we call the low approach—there is no osteo-plastic flap, the bone is bitten away with a rongeur, but the open-

ing is low down; that is the usual method now employed in reaching the ganglion.

The operation of ganglionectomy had a high mortality and Spiller of Philadelphia about 1898 suggested division of the sensory root as a substitute for ganglionectomy, it having been discovered that spinal sensory roots sectioned proximal to the ganglion did not regenerate, because degeneration extends along the fibers into the c. n. s.

Frasier of Philadelphia was the first to adopt the suggestion and it was found to be so successful that now it is practically *the* operation for the permanent cure of this disease in the United States. It is far less dangerous than ganglionectomy and quite as successful.

The last word in its performance is the operation under local anesthesia with saving of the motor root. The head lends itself very beautifully to successful local anesthesia—the patient sits up throughout, very rarely is it necessary to let the chair down. However, one should always be ready to do so if the patient should faint or feel weak. There are some patients who *will not* be operated on for *anything* without first going to sleep. This operation is not for those. To say that it cannot be successfully done is to acknowledge that one does not know what may be done under local anesthesia. There is no flap—a single straight almost vertical incision just in front of the ear up from the zygoma for about two and a half or three inches. The scar is all above the hair line. The temporal muscle is lifted up and some of its lower fibers detached from their origin—the bone is drilled—the opening enlarged—the dura separated—the middle meningeal artery is either ligated or its foramen plugged—the third division is reached—the back part of the ganglion is exposed—the cave of Meckel is opened and the sensory fibers cut close to their attachment to the ganglion—the motor root lies deeper and passes behind the ganglion and in the majority of cases can be saved. The wound is closed without drainage.

So far we have operated on thirty-three cases *under local anesthesia*. The mortality is zero—cures are one hundred per cent, and if they are not permanent I will have to acknowledge that either I have failed to cut all of the root or else I operated for something other than true trigeminal neuralgia.

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SHOULDER FRACTURES*

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Shoulder fractures, common, regarded with a dread hardly justified. Save for a few they do surprisingly well if only treated with proper optimism and proper basic technique.

It is just in the smashed shoulder of elderly ladies, so often seen, that results are so good. And the key to the matter is that anatomic reposition in the shoulder is very unimportant; horrid heresy, but true. So long as the greater tuberosity will go up under the acromion the shape of the upper humerus end matters little. Union occurs, always, I think, and very promptly. A fortnight sees a working union already established. I can not recall a case of non-union, —outside the Warren Museum.

Suppose we have an impacted fracture of the anatomic neck, one of the sort so often seen in which the x-ray shows curious distortion of general outline with vague lines of fracture. As a rule this type occurs in the elderly. By no means do we break this up or worry about the symmetry of the result. Skilfully mobilized, such a condition permits all the motion the old lady will ever use, the risk is of stiffening *only*, and of stiffening due to immobilization. In these cases the form of fixation is immaterial, the period not over a week, the rest is up to the P. T. aide.

Fractures of the surgical neck are usually loose, must be reduced. Under ether, the best practicable reposition is to be sought. Usually this means reduction of the shaft fragment from the point forward and inward to which the pectoral has dragged it.

Perfect reductions are not reached—nor necessary, and open reduction in the average elderly patient, not to be thought of.

We have two ways of handling to be considered, the Jones-Murray splint for traction in bed at a right angle, or the various forms of aviation splint. The army aviation splint is almost as poor as the old time plaster spica. Cleary's is better, but best of all is the half forgotten Monks' triangle which I nearly always use for the ambulatory cases.

The essential is an abduction, with traction if need be, at such an angle that we are sure

the greater tuberosity will clear the acromion and will stay clear for our initial ten days. If there is a complicating fracture of the greater tuberosity this also is taken care of by forced abduction. If there is only the greater tuberosity broken clear, abduction, and in this case without traction, is all we need. In any case ten days does the trick.

Then the arm may come down into a sling, and proper mobilization, including a daily return under handling to the abduction position secured at the start, secures our result.

Often I bring the arm down in two stages using the Osgood Penhallow splint for the intermediate stage.

Just now I am finishing with a case of loose fracture of the surgical neck with separation of the greater tuberosity. It is two months now, ten days after ether reduction were spent in a necessarily uncomfortable abduction, Monks' triangle, and after that mobilization.

She can get to her back hair now, though she is a plump little old lady, and the work since the tenth day has been done nearly all by my masseuse.

A second case, loose anatomic neck only, reduced and held in abduction splint, needed later support in an adhesive plaster sling to control a downward subluxation due to the drag of the weight of the arm when it came down,—a not uncommon complication,—slung so as to take care of this without limitation of motion,—this case also went into the hands of the P. T. aide. More recent, she shows less motion as yet, but will presently reach the stage of full usefulness.

It is not of importance whether one attains a perfect position in these cases, but absolutely essential that one avoid a stiffening that will not let the patient reach her back hair or the placket of her skirt behind.

These are the cases I see most often, and their treatment in the last few years has become a matter of successful office routine.

In the younger cases one must regard anatomic results more. The same abduction splints are called for for a while but one is dealing with conditions of muscle spasm not met with in the elderly.

Many may be handled with the routine above dictated, but not a few are irreducible or intractable, and not a few call for open reduction.

Particularly in adolescents with breaks just

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below the epiphysis or with epiphyseal separation, one fails of satisfactory reduction.

In these cases the bugbear of stiffening from fixation is not much to be considered, and it is fair to call for better anatomic results. Hence in this class the proportion calling for open operation is rather large. Often on operation one finds the biceps tendon as the obstacle. Reduced, these cases go up in abduction,* are mobilized at about three weeks and do well. Rarely one meets fracture luxations. Rarely with good luck one juggles these into place.

Commonly, one operates, and secures reduction; uncommonly excision of a loose rolling head is the best thing to do, with an end-result by no means perfect but apt to be curiously serviceable.

It is odd to note how rarely the adhesions of the subacromial bursa, which must constantly occur, do affect our results under this routine; not less odd, perhaps, but less happy, to note the proportion of hopeless stiffening especially in older patients that results from even good anatomic reduction under a routine that lays less stress on early mobilization.

Fractures of the Hip: Few lesions more troublesome, few in which the literature is more painful.

Here in Des Moines I hesitate a little to speak on hip fracture but I have my return ticket and am going to take a chance. As I see it the trouble has been that we have talked too much. The fact is that there are two types, one that does fairly well and accounts for boasted results, the other that doesn't do very well on any basis of treatment.

Hip fractures more than any other break are injuries of the old, who are clumsy as well as brittle.

Not a few cases die, in the first week or not seldom in convalescence. They die of heart or lung or brain complications due to shock or to the confinement which is inevitable in such cases. They die because they are old and unsound, not because of one or another form of treatment. In public hospitals the mortality runs with curious constancy from 15-18%; in private practice, with a better "material," a little lower but still a considerable mortality.

Now as to treatment: First, I let them alone

under pillow support for a few days to get over the initial shock. Also, to get x-rays and a definite diagnosis. Also to see if they are going to "blow up" and get a heart dilatation or hypostatic pneumonia or prompt bed sores.

If they are, I'm going to hold my hand a bit, on the ground that I can do no good by early interference and can easily accumulate discredit. Whatever happens after any surgical interference is debited against the surgeon, of course.

There are many cases of hip fracture that are essentially hopeless and it is simply silly to attempt radical interference in such cases.

After five days, let us say, we are convinced that our old lady is fit to treat with a view to locomotor results. X-rays have shown us a fracture intra or extra capsular, impacted or not. If it is extracapsular, intratrochanteric, we are going to get union, whatever we do. The problem is of avoidance of deformity, and there is no way so satisfactory as traction. The Phillips-Maxwell-Ruth method of longitudinal and lateral traction is the prettiest scheme. It has fully justified itself in this class, and all the post-mortem specimens Ruth used to lug around in his bag, which I have examined carefully, seem to me to be cases of this type, adequately treated, with admirable results. With careless treatment we have horrid coxa vara deformity and serious disability. In my own practice I used to use the Phillips M. R. method. The only possible objection to it is that it requires skill and care to avoid interference with circulation and, working as I do in a large municipal hospital, I find the detail of work by internes and nurses a matter of some worry.

Therefore of late I have substituted traction in abduction with an increase of weights to balance against Dr. Ruth's attention to detail with about the same results. All those cases do well and get *early* union. They are stiff at six weeks, solid at 8, walking in 12, and if one has done a proper job, the resultant disability is no more than a minimum stiffness and sensitiveness.

The other class is "something else." The break is within the joint, "intracapsular," "sub-capital." The problem is one of union, and that only.

The trouble is that we are dealing with the separation of a head which by the occurrence

*NOTE: Rarely owing to heavy pectoral spasm, adduction to the side is called for, in a double sling with axillary pad.

of the fracture has lost most of its blood supply and of its capacity for bone repair.

Many of the cases fortunately are impacted. Unfortunately the impaction is often a frail safeguard, and often with the progress of the bone softening, which everywhere precedes repair of bone, the impaction gives way. I think the frequency of this calamity has not been appreciated. Personally, I have seen this happen in a number of cases and from investigation of end-results in hospital cases think it decidedly common.

Every bone softens before it begins to unite and in this particular location softening may well result and does result in the loss of an impaction none too firm at best. Given impaction in tolerable position our problem is to minimize the chance of this disaster. What we can do is to fix and to minimize the untoward result of muscle spasm.

That means abduction, of course, the position of choice in all hip lesions for the reason, first of all, that it avoids abduction contracture; second, that it minimizes the distorting effect of muscle spasm by bringing the pull more nearly in the line of the broken neck, third, that it tightens the ligament. Whitman has very usefully popularized this principle.

Secondly, we must invert the limb. Peckham of Providence, R. I., deserves a credit never given for stressing this point. Anyone who has operated on hips can testify to the definite fixation produced by such sharp inward rotation. The mechanism is, of course, that of ligament tension.

With impaction, then, abduct and invert, to the limit obtainable without breaking up the impaction. Fix for three months, preferably in plaster. I use a double spica stopping at the knee on the good side. Allow motion in bed through the fourth month. Crutches at four months with increasing weight on the foot. Full weight at six months.

Recovery of full use needs a year, and under any routine we know there are going to be a proportion of failures—of nonunions.

And now as to the unimpacted cases: They can be reduced, in such instances as allow of general anesthesia, by traction and manipulation. Whitman says they can be locked in abduction. I prefer, still, to add the assurance

given by my scheme of artificial impaction after reduction.

One can demonstrate easily as I have often done and lately did three days ago, the locking into firm position of a fracture previously loose, so that it does not "flop" into outward rotation or shorten under muscle spasm. This done one can do no more than fix in abduction and sharp inversion. This gives a condition about like that of a primary impaction in favorable position. After this it is "up to" the patient's repair power. We can care for the fixation and the subsequent return to use,—that is all.

Campbell reports the best results, I think. Whitman seems to have no collection of cases, and mine, while not bad, do not show up as well as Campbell's,—a difference due, I fancy, rather to difference in "material" and to hospital conditions than to method.

My private cases have shown admirable results in the main, but here again an occasional case of utter failure to get bony union despite care and a favorable start. X-rays in these cases, have shown a curiously intense absorption process from the start.

I am at a loss to give any real explanation as to why this process varies so from case to case and have no suggestion, so far, as to any means of influencing the process.

What of late cases? Two cases, one of mine, one of Dr. Otto Hermann's, seen by me in consultation have gotten solid unions and admirable results from reduction and artificial impaction done after two months. His case had given way under the Whitman routine, was then re-reduced and impacted. Possibly even later cases may prove amenable to such treatment.

Operative results are not very good, I fear. Like others, I have had my successes and have not made a very loud noise about my failures. If one must operate it is a question, I think, not of bonegrafting stunts but between the Brackett operation, the choice in most cases, and excision of the head with shaping of the neck to serve as a new head, with or without the fat flap of a formal Murphy arthroplasty. The choice rests in the matter of age and time.

The Brackett operation means six months, gives a solid hip with some loss of motion; the arthroplastic excision gives a result usable in half the time, but less stable.

In the many cases not fit for extensive opera-

tive procedure one accomplishes much with a supportive belt, and non-union is not necessarily a crippling disability.

To sum up: Extracapsular fractures can be restored to near normal function.

Intracapsular fractures handled as sketched, give a proportion of *perfect* results, many serviceable limbs,—proportion irreducible as yet, of failures,—not all of which are to be restored to useful function by any operative or other means as yet at our command.

PRELIMINARY REPORT OF THE COMPLETE SURGICAL RESECTION OF THE THYROID GLAND*

OTIS M. WALTER, M. D.
CHICAGO

The frequent post operative recurrence of exophthalmic goiter, the incomplete recovery, the increase of symptoms shortly after the operation, has led me to consider the advisability of complete extirpation of the thyroid gland from patients who are suffering from thyrotoxicosis. It has been shown, however, that the removal of the entire thyroid gland in young animals may produce symptoms simulating myxedema. Luckhardt's work indicates that true myxedema, with its full complement of characteristic symptoms, does not ensue in even a small percent. of thyroidectomized adult animals. In this connection Crile states in his book, "The Thyroid Gland": In perhaps one out of five hundred cases, the thyroidectomy is followed by symptoms of thyroid deficiency. This complication is easily controlled, not by iodine, but by the intermittent administration of thyroid extract.

In course of time, for some unknown reason, the symptoms of deficiency permanently disappear.

I do not propose in this paper to enter into an extensive discussion of the complex relation of the various glands of the endocrine system and their relation to the sympathetic nervous system, but I do wish to state the results of the work which I have done on the thyroid gland.

I fully realize that I am contradicting the statements made in our text-books, and in much of our current literature, therefore, I have de-

layed making a report of this work until this late date in order that I might make as complete observations as possible.

The patients on whom I have operated have been single girls, or women who were apparently sterile from other causes before operation. Two of the single girls married soon after leaving the hospital. One of these has not yet conceived, the other, as hereafter reported, has given birth to a healthy child.

It is evident that this data is not sufficient to permit me to make a final statement, but it does indicate that complete resection of the thyroid does not materially influence conception or pregnancy.

The cases which I will report are as far as I am able to judge a fair sample of seven cases which I have done in the past three years:

Miss E. C., white, aged 23 years, principal complaint, nervous at intervals, for the past two years. The symptoms have been exaggerated during the past six weeks. Physical examination revealed the cardinal symptoms of thyrotoxicosis. The patient was hospitalized and operated on March 3, 1920. The entire thyroid gland was removed and patient made a prompt recovery. This patient has moved to another city and I have been informed that she has married and was confined, June, 1923, giving birth to a healthy child.

Miss G. C., white, aged 27 years. Her family history is negative, except that her mother and three sisters have had goiters. The four daughters have had a thyroidectomy.

I did a complete thyroidectomy on three of them. In February, 1921, patient developed symptoms of toxic goiter and during that month I did an incomplete thyroidectomy, after which, the symptoms improved for about nine months. Then the symptoms recurred and the remaining portions of the gland showed evidence of enlargement. On February 3, 1922, I did a complete surgical resection of the remaining portion of the gland. There has been no material change in weight since that time, the menstrual periods are regular and normal. The patient is holding a responsible position and is amply able to do her work.

After reviewing the post-operative history and findings of the cases operated upon to date, I offer the following conclusions:

1. Complete thyroidectomy in the adult does not cause myxedema.
2. There has been no evidence of recurrences.
3. The temporary exaggeration of symptoms which frequently follows operative interference is not observed.
4. The period of convalescence is reduced.

*Read before the Chicago Medical Society.

REASONABLE REGULATION OF CLINICS

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In its efforts to hold within reasonable bounds the activities of volunteer and official public health enthusiasts and in its endeavor to check the apparent tendency toward the usurpation of medical practice by governmental agencies, the organized medical profession has at times been misrepresented as opposed to all forms of social medicine and to all kinds of public health endeavor. When the medical profession has placed strictures upon certain medical and public health activities which have not only invaded the province of the doctor, but have been of such character as to be of doubtful public value; when the profession has opposed certain types of clinics as savoring distinctly of state medicine as properly defined; when the profession has criticized the excessive zeal and aggressiveness of certain individual public health nurses, it has been charged with being antagonistic to public health work in general and to clinics and public health nurses in particular.

As a matter of fact, with full recognition of the part which public spirited laymen and social workers have taken in the field of preventive medicine, even a casual study of any constructive health movement will disclose medical men furnishing the technical skill without which such programs would be impossible and supporting the movement with generous contributions of time and money.

While it is, of course, true that there are occasional individual instances of intolerance and unreasoning opposition, these do not in any sense represent the attitude of the medical profession which, on the whole, is appreciative of the great value of an aroused lay public health conscience and actively interested in the proper development of public health work. This very definite and increasing interest among physicians in Illinois is finding expression in the excellent work of the Lay Education Committee of the State Medical Society and in the painstaking endeavor of the Council of the Society to fairly and impartially define what may or may not be regarded as proper and ethical methods of public health work.

But in spite of this evidence of interest and good faith, there is still a tendency, particularly

on the part of organizations dominated by enthusiastic, well-meaning, but misguided laymen and social workers to misinterpret the attitude of the medical profession and to attribute to it an obstructive tendency which does not exist. Even the very reasonable and moderate strictures imposed upon clinics in the definitions adopted by the Council at its recent meeting at Quincy, have been construed by certain prejudiced persons as being antagonistic to clinics as a whole.

As a matter of fact, there is no reason why these definitions, fairly and intelligently applied, should interfere with any legitimate clinical service or serve as an obstacle to the development of any proper clinics in the future and, in evidence of this fact, the Illinois Tuberculosis Association, which has sponsored and conducted diagnostic clinics for years, finds itself in position to strongly endorse the definitions as adopted. In fact, the Association has demonstrated in the past that clinics can be successfully conducted under exactly these ethical provisions and reminds us that these restrictions, safeguarding the interests of the medical profession, have been operative in most of the tuberculosis clinics of the state for several years.

To assure the proper conduct of its clinics, the state tuberculosis organization issues a printed circular, the first edition of which was published in 1917, copies of which are placed in the hands of all public health nurses and in the hands of officers of local tuberculosis associations before clinics are arranged. The attitude of the State Association is indicated by the following extracts from this circular:

"It is desirable that the county medical society shall be invited to participate in the clinic and to assume as much responsibility for its conduct as the society may choose. In many counties, the tuberculosis diagnostic clinic takes the place of the regular meeting of the county medical society, the invitations to physicians being extended through the society.

"*In any event, an invitation from the county medical society or from the president or secretary should accompany the application for the services of the clinician when made to the Illinois Tuberculosis Association.* The physicians rendering clinical service are naturally unwilling to come into a county without this courtesy from the local physicians.

"The clinics are diagnostic clinics. They have

nothing to do with the treatment of patients. They are held only in conjunction with the county medical society or the local medical profession. The individual local physicians are invited to bring their own patients to the clinics or to express their approval of their patients being invited to the clinics. The clinics are held chiefly with the medical profession, for the medical profession and by the medical profession.

"Nurses and others arranging clinics are particularly urged not to present patients for examination except with the approval or in the presence of the patient's family physician. When the family physician is unable, for any reason, to attend the clinic where his patient is examined, the nurse is expected to convey to the family physician the diagnosis and suggestions made by the clinician. The case records and graphic charts are left in the community and should be available to the patient's physician at any time.

"After the clinic is over, the nurse should visit the family physician of each patient examined and present for his inspection the case history and chest chart as made by the clinician."

These rules, adopted about seven years ago, indicate the earnest desire of the association to comply strictly with every reasonable requirement of the medical profession and the success of this effort is evidenced by the thoroughgoing co-operation which has been given by a large proportion of the county medical societies of the state.

The association, however, has not been satisfied with merely "reasonable compliance" with the opinions of the medical profession and, during the past year, has adopted a plan which has removed even the last remaining trace of doubt as to the high ethical standards of the clinical service. Under this plan, now generally followed, these rules apply:

1. No diagnosis or opinion is given to the patient; but the diagnosis and suggestions are written by the clinician in a personal note to the family physician and the patient is informed that he can obtain this information only through his physician. This note is mailed to the family physician in a sealed envelope immediately after the clinic.

2. If the patient has no family physician or is under the care of an irregular practitioner, he is received and examined, but is given no in-

formation whatever as to his condition. He is advised that the diagnosis will be sent only to some reputable physician of the patient's own selection and can be obtained only through this physician.

In this way, incidentally, scores of patients who have not seen their physicians for months (as is often the case in tuberculosis), are brought back to their doctors and scores who are dosing themselves with patent medicines or who are under treatment by chiropractors or other irregulars, are brought under proper medical supervision and care.

3. No treatment is given at the clinic and none suggested except in the clinician's personal note to the family physician.

4. The suggestion that the patient return for further examination or observation is made in the personal note of the clinician to the doctor and not to the patient.

Under these rules, the clinic becomes of very great practical value to the physician, and that it is so recognized is shown by the fact that, during the past year, especially in the established clinics under the auspices of the State Association, the large majority of patients are directly referred by physicians without solicitation of any kind.

Conducted in this way, the clinic is being more and more employed not only for the purpose of establishing diagnosis in doubtful cases; but, even more, for the purpose of confirming the diagnosis which the family physician has already made and which the patient may be unwilling to accept or which, for one reason or another, the physician is reluctant to announce without outside confirmation. More and more often the clinicians are asked by physicians to so frame the confidential reports and recommendations as to aid in that very difficult matter—the proper discipline of the tuberculous patient under home care.

In reviewing the very unusual precautions which the Illinois Tuberculosis Association has adopted to make its clinics in every way in conformity with the proper requirements of the organized medical profession, it may be said that such a course is to be expected when one considers the origin and history of the tuberculosis movement in the nation and in Illinois. The National Tuberculosis Association, organized at Baltimore just twenty years ago, by such

men as Sir William Osler, William H. Welch, Edward L. Trudeau and Edward R. Baldwin, has always been dominated by medical men of the highest type, the by-laws providing that medical men must always be in the majority on the board of directors, while the Illinois Tuberculosis Association, always controlled by physicians of the better type, now has as its president a former president of the Illinois State Medical Society, while the present president of the State Medical Society is now the first vice-president of the State Tuberculosis Association and deeply interested in its affairs.

A CASE OF GLANDERS IN THE HUMAN; ITS MANIFESTATIONS AND TREATMENT*

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LITCHFIELD, ILL.

The subject of my paper, though rather unusual, is one of great interest from several standpoints, possibly the most important being its apparent rarity in the human.

Glanders is primarily a disease of horses and mules, infection with the *Bacillus Mallei*, and may occur in those who handle infected horses or who are exposed in some way to contagion from them. Infection has occurred in those working in laboratories. In horses the disease is largely an infection of the nasal and respiratory tracts frequently assuming a chronic course. Nodules appear upon the nasal mucosa and septum. These nodules are very firm, finally breaking down and forming extensive scar formation. This disease also affects the trachea, lungs, intestines, lymph glands, ovaries, testicles and spleen.

I do not intend in this paper to give the bacteriology of the *Bacillus Mallei* except to say that Glanders Bacilli grown on glycerin veal-agar, blood serum and potatoes produces characteristic growths.

The case I am about to report is one of a male, aged 48 years, white, a hostler in a road construction gang. On Dec. 23, 1923, one of our group was called to see a man taken sick with what appeared to be bronchial pneumonia. He was removed to St. Francis Hospital, Litchfield, and on admission complained of feeling chilly, of cough and pain in the chest. On admission temperature 103, pulse 104, respiration 30.

Personal History: Was a sailor in United States Navy 22 years, 1 year out, no illness in childhood and no sickness of any importance since then.

Family history was negative.

Present Condition: A well nourished man showing no loss of weight, skin moist, breathing increased in rate.

Examination of chest showed well formed chest with areas of consolidation in both lungs and numerous moist crepitant rales. Free foamy expectoration slightly blood tinged.

Abdomen negative to tenderness or masses.

Muscles normal and reflexes normal.

Urine normal.

Blood Count: Hemoglobin, 80 per cent.; Red blood cells, 4,900,000; White blood cells, 13,000; Polymorphonuclear leucocytes, 82 per cent.

Wassermann negative.

Sputum examination showed no tubercle bacilli and numerous organisms usually found in such cases.

This case was treated as one of a frank bronchial pneumonia and in fact followed a typical course.

At the same time as this man lay ill an epidemic of glanders broke out among the horses in the camp from which this man came.

On January 4, 1924, just 12 days after admission to the hospital, this man developed acute pain in right lower quadrant of abdomen and on that date the leucocyte count showed 14,000 white blood cells. The right rectus muscle became very tense and there was every evidence of an acute appendicitis. There was at this time not enough pathology in the chest to warrant us in believing this was a referred condition from the chest and under a light anesthesia the abdomen was opened over McBurney's point and a very acute gangrenous appendix removed, surrounded by a thin serum. Appendectomy was done and a cigarette drain inserted.

A smear from the abdominal drain showed in the laboratory of the State Department of Health a culture of *bacillus mallei*. It was then that the sputum was examined for *bacillus mallei* and they were likewise found there. The patient made an uneventful recovery from his glanders infection of the appendix and on Feb. 1, 1924, developed deep indurations of extensor surfaces of left leg, left arm and calf of right leg.

Incision of these abscesses under 1 per cent.

*Read before the Section on Surgery of the Illinois State Medical Society, Springfield, May 7, 1924.

Novocaine revealed pure cultures of glanders bacilli both by injection in guinea pigs and culturally. The sinuses from legs and arm gradually healed and from then on this man made what so far has appeared to be a complete recovery.

Dr. W. C. Nordholz of Chicago, who saw this case with us, sent us in February, 1924, Mallein vaccine from the Department of Agriculture at Washington and injection of the vaccine produced no local results nor general symptoms of malaise or fever. We are rather of the opinion that the vaccine was quite inert.

The leucocyte count before injection was 15,000 and after each day for three days was practically the same.

The appearance of these abscesses was exactly like any metastatic staphylococcic abscess sub-fascial not involving bone showing a thick stringy yellow pus. The recovery was as from any staphylococcic abscess. Had no smear been made or had we not been suspicious of glanders abscesses we no doubt would have considered the case one of plain staphylococcic infection. Just such cases as this should encourage all of us to plate and culture each abscess cavity that we open.

The diagnosis of glanders infection in man is not difficult, but due to its rarity we fail to suspicion its presence.

The mallein test has been acknowledged as a failure in the diagnosis of glanders in man. The diagnosis should be made bacteriologically, by cultures and animal inoculations and not by the microscope. Glanders produced in our hands a yellowish slimy growth on potato in forty-eight hours and agglutination as in typhoid and also guinea pig inoculation produced death of the pig in one week with pure culture of *Bacillus mallei* in the necrotic testicle. Likewise the compliment fixation test is very valuable. The United States Department of Agriculture has the necessary reagents on hand for the compliment fixation test.

I may say here that in looking over the history of glanders infection in the human that our suspicion of its presence should be aroused when abscesses which are chronic, seen in the extremities, go unhealed and producing recurrent abscesses in different parts of the body.

In regard to the history of the malleus infection in man I shall give you these relevant facts as taken from a letter from Dr. Thos. Hull of the Illinois Department of Public Health in

which he says: "In Illinois no cases of glanders have been reported to the State Department of Public Health for past six years until the present one at Litchfield. In a survey among the laboratories in Chicago for information as to the prevalence of glanders made by Dr. Nordholz, Dr. Webster at the Chicago Laboratories found a record of a case 22 years ago but nothing since that time. At the Cook County Hospital there occurred a case twelve years ago. At the stock yards, where a large number of horses and mules are handled, only one case of human glanders is on record. That occurred six years ago. At the Memorial Institute a laboratory worker died from glanders about six years ago. This man had been working with glanders organisms and apparently was infected that way. His condition, however, was so obscure that glanders was not diagnosed until a few days before his death, in spite of the fact that the history of the case and the best diagnosticians obtainable were available."

In the *Journal A. M. A.*, February 23, 1924, page 646, from the regular correspondent at Prague:

The medical profession of the Czechoslovak Republic has been greatly alarmed by seven deaths due to an infection with malleus within a short period. The original four cases occurred in persons who had been taking care of a horse that was sick with malleus. The first professional infection took place when a necropsy was performed on the horse by the assistant of the school of veterinary medicine in Brno, Dr. M. Derbeck. When Dr. Derbeck died, after a rather prolonged sickness, the suspicion of a chronic infection with malleus was aroused and blood smears and inoculations were performed during the necropsy by Dr. J. Solc, the assistant of the institute for pathologic anatomy in Prague. Shortly after that Dr. Solc came down with an acute infection with malleus and died within a few days. The death toll of this dangerous malady was not exhausted yet, because in a short time the death of Dr. J. Purkrabek, assistant director of the institute of serology in Ivanovice, was announced. The deaths are the more significant in that all the three victims were well known in professional circles as renowned investigators. This unfortunate experience emphasizes again the well known danger of laboratory infection with malleus, because it can be presumed that infections occurred in spite of necessary precautions, which had probably been taken by these experienced investigators.

Treatment. In this case as reported by our group we had and used no specific treatment except that specifically indicated, such as appendectomy and incision of the abscesses. The pa-

tient was making such favorable progress that when we were able to obtain the hyperimmune serum the patient was considered as cured, but should we have another case of glanders we should resort at once to the serum of Watson.

Here it has been shown, as quoted in the words of Watson, "that the horse can without difficulty be hyperimmunized with mallein and that an animal so treated can furnish a serum which, in the compliment fixation test, permits of the titration of any sample of mallein and thereby gives indication of the widely varying reactivity and antigenic values of malleins of different origin and preparation."

Animals experiments summed up show that one or two subcutaneous injections of mallein used for purposes of diagnosing glanders in a horse will give rise to antibodies and cause positive serum reactions for a period of time. In other words, a mallein injection has almost the same action on the production of immune bodies in a horse as the killed glanders bacilli.

Dr. Watson reports that in April, 1923, in the province of Manitoba, three (3) definitely diagnosed cases of glanders were successfully treated with the hyperimmune serum. Anti-mallein serum in these cases was given in what appeared to be rather small doses. I can see no objection to increasing the dose unless the case in question showed signs of marked collapse. One cubic centimeter was given twice daily for two days, then $\frac{1}{2}$ cubic centimeter twice daily for four days.

Conclusion drawn from the meager reports and our own experience in this one case seem to show that

First. Glanders is a well recognized disease in humans.

Second. That its manifestations are not strictly followed as in the animal in production of farcy buds and naso-pharyngeal symptoms.

Third. That it can be confused with any type of infection of the deep muscle or of the bones unless definitely decided by cultural or serological methods.

Fourth. That the few cases of human glanders which have been reported are probably only a small proportion of those which have been correctly diagnosed. No doubt but that most of these cases have been included under some other headings in mortality statistics.

Fifth. That remissions in supposedly cured

glanders cases have reappeared as late as fifteen years after original infection and therefore the prognosis should be very guarded.

And lastly that considering the results obtained in the few cases treated with hyperimmune serum we certainly have added a very powerful factor in the treatment and possible cure of this otherwise very fatal disease.

In the treatment and diagnosis of the above reported case especial thanks are due the Illinois State Department of Health and to Dr. A. E. Watson of Ottawa, Ont., for his many valuable suggestions.

THE SINGER'S VOICE*

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I do not consider it of vital importance for a laryngologist whose desire it is to analyze and treat the singer's voice, to search the literature for psychologic connections between the brain and vocal cords, and yet it must not be denied that the discovery of "Broca," namely, that lesions of the third left convolution of the brain result in loss of articulated speech is of value. It seems, however, that this theory may not be entirely true.

We cannot afford to overlook the researches of such men as Hitzig, Fritsch, Wernicke, Nothnagel, Goltz, Charcot, and Meynert, whose work on the action of the brain and central nervous system was so important. Wernicke and Lichtbeim constructed various plans to show the connection between the speech functions of the brain which indeed was and still is very important. But such research does not necessarily lead us anywhere in satisfying the worried tenor or soprano, for it seems these two vocal aspirants have the most complaints. What then shall we do? What course shall we pursue to help, both physically and mentally, those who come to us for greater advice than can be given by their vocal teachers?

The laryngologist must understand the singing voice both from the standpoint of the teacher and pupil alike. He must know what it means to produce a beautiful tone. He should have produced it at one time in his life at least, and have an understanding of the severe task of the pupil singer.

Oftentimes, the student comes for an examina-

*Read before the medical staff of the Illinois Masonic Hospital, March 18, 1924.

tion where not the slightest pathological tissue is in evidence and yet they have a real complaint. Their voice breaks on certain tones, or it buzzes around their heads like a whirlwind. Quite often, they complain of much heavy mucus in the throat which causes them great annoyance, so much so that they seek relief from the specialist. Quite often the advice given by the vocal teacher is sufficient; yet the fact that they do seek further information forces us to give an intelligent analysis.

To analyze a voice, one must know tone; the physician must know what composes a beautiful tone, and what the supporting elements are that go to make up such a tone, and at this point I find *myself* in difficulty. I can tell a perfect tone when I hear it, and can detect the slightest error in an imperfect tone; but to describe the various vibrations that compose it is not so easy. I can only attempt it.

We know that middle C on the piano has 512 vibrations per second and that each succeeding octave doubles itself. In addition to the 512 vibrations per second which is heard upon striking middle C there are overtones a few notes higher on the piano which blend themselves with the note struck. The same is true of the human voice. In singing middle C, however, the overtones are somewhat different and are really undertones, being about $\frac{1}{4}$ note below the tone sung. For example, if a singer sings a pure tone on middle C, corresponding to middle C on the piano, a secondary vibration of the voice takes place at about a quarter note below in addition to the tone of middle C and at the rate of about 200 per minute. These two combined tones, one at the rate of 512 vibrations per second and the other at 200 per minute, constitute a pure tone providing there is no laryngeal interference. I do not wish to state that this last statement is an absolute fact but wish to bring out these points to encourage further study and investigation.

To say that a tone is made up of certain physical and mechanical structures, operating and vibrating in unison, is not entirely true. Certain mental, temperamental, and psychological factors have a great part to play in voice production, and yet, all must be entirely and at all times under the control of the will.

It is generally known that there are three distinct changes to be made in the complete range of a normal voice—

the low range
the middle range
the upper range

The vocal teacher will begin the pupil on those notes which are comparatively easy and which is usually just before the middle range begins. Most vocal teachers begin to train a voice on the broad vowel A, which has the sound of AH, because it is known that the first sound of the infant is an AH and therefore must be the most simple. In carrying the tones up and down the scales a few notes each way from the easiest tone that the beginner is able to produce, his range and quality is increased as time rolls on. He is then carried to the middle range on the vowel O. The O takes the place of the AH because it has been found that much difficulty is met with in trying to pass the junction of the lower with the middle range. The O is then later blended into an AH and the scales of the two registers appear without any change. When this is accomplished the pupil is introduced to the exclusive and, I might add, very elusive realms of the upper register—head tones—head resonance—or whatever term or fancy suits the best judgment of the teacher.

This is the stage of extreme discouragement, and I feel sure that 99 per cent. stop before or at the time of encountering this invisible something that seems to hang on a silken thread, alternately tempting and discouraging all those who would seek it and hold it for themselves. The desire for a tenor to sing a high C is greater than the lust for gold. His one ambition is to hold his audience spellbound with a tiny tear-drop in the corner of each eye of those who love music and a beautiful tone.

What is the result? Perhaps he really does accomplish it and then we see him from time to time for acute conditions, or perhaps because of some trivial neglect of his physical self he has allowed himself to strain his voice. Someone has said that "Even the quality of mercy is not strained" and so we will say that he suffers from congestion of the larynx, irritation of the vocal cords, and diminution of the amount of secretion of those parts.

The third register is produced by a complete and thorough training of the first and second registers and by beginning the third register on the sound UH, carrying this all the way through and finally blending it into an AH, once the sensation of freeness is felt and clearly understood.

The rest is comparatively easy, and we rarely hear further functional complaints from this individual. The less fortunate pupils find themselves at this stage of their career discouraged, mentally depressed, and quite often on the borderline of a neuroses, ready to seek any information that may be of service to them or to give up entirely.

We have the falsetto artist who produces beautiful falsetto tones to the untrained ear and, indeed, sometimes a pleasant and refreshing change from the true tone. Fortunately for them, however, that they do not make a serious study of their voices, with few exceptions, of course; and they are, therefore, somewhat free from the many functional neuroses of the seriously trained singer. I say fortunately, because were they to put as much effort into their training as the other class they would soon go to pieces in a vocal way. It has been proven by a special instrument that a falsetto voice is produced by the vibration of the lower edges of the vocal cords instead of the full medial surfaces.

We still consider the importance of breathing correctly of greatest significance and should be watched by the pupil constantly, allowing the diaphragm to contract at the same time with the release of air from the lungs.

Much has been said about the torso; yet those few last words supply the information in a nutshell.

4008 Milwaukee Avenue.

DISCUSSION

Dr. J. Holinger said that the cultivation of the voice was purely empirical until 1906. Each teacher had his own method and one great mistake all teachers have made is to over-work their pupils at an early age. They insisted on their singing for hours at a time at an age when the voice would be tired out after five or ten minutes. The voice is very often not the most important thing; the hearing has to be trained and this can be done only to a certain extent. Any number of singers have been in training for years only to find out finally that their ear is not fitted to make the finest differentiations. Happily in modern music this is not so very important.

The color of the vocal cords ought to be clear white. As soon as they become gray in color the pupil ought to stop singing until all signs of serious inflammation have stopped.

A singer must be trained to the extent that he can produce the sound with perfect relaxation of the muscles of the pharynx. As soon as he begins to cramp up his pharynx there are very characteristic changes in the sound which make it very disagreeable.

He thought it was time that these matters be brought to the attention of the general profession.

Dr. H. J. Williams disagreed with Dr. Holinger as to the color of the vocal cords. He believed the color varied as much as the color of the hair. There are vocal cords of pearly white, others that look like chalk, and others that are pink.

He said the tonsil question in singers had been much discussed. He has made it a practice that unless there were very good indications to leave the tonsils alone in adults over forty who have been singing for a long while.

He did not agree with Dr. Holinger that training was begun too young. Changes in voice occur in women the same as in men.

Dr. Alva Sowers cited one or two personal experiences that were of interest. Occasionally one finds a teacher who has labored for a long time with a pupil without result. He refers him to the doctor who removes the tonsils and this often proves a good excuse for not producing a voice. In one instance, he had refused to remove the tonsils of a young lady about to make her debut on the stage. She had had recurrent attacks of tonsillitis, but he felt the tonsils should not be removed. Her voice was not impaired by the recurrent attacks of tonsillitis.

Dr. LeRoy Thompson asked if there were any authentic cases on record where a singer's voice was impaired by tonsillectomy.

Dr. H. E. Taylor, in closing, answered a question asked by Dr. Weatherson as to the difference in the vocal cords in the different tones by saying that the cord in the base voice was longer and thinner than in the baritone voice. The cord in the tenor voice is thick and short.

As to the color, the edges of the vocal cord should be clear cut as well as pure white.

In answer to Dr. Thompson's question, he said he did not know whether there were authentic cases of impairment of voice following tonsillectomy. He had had people come to him hysterically and claim this result. He had seen cases where the incision made in the anterior pillar interfered with the excursion of the soft palate. He felt that most men were agreed that tonsils should not be removed unless they were badly diseased, in which event the patient should be told that their removal might interfere with the voice. In young people just beginning to study removal of the tonsils is a mighty good thing where they are interfering with the excursion of the soft palate.

He said the sentiment had been expressed that the singing voice was a very difficult something that no one knows anything about. It is really not difficult for the person who can conceive what a normal tone can be. The person who does not know what tone is cannot be a singer.

About every ten years a new mass of literature appears on the singing voice. There are in the neighborhood of three to five books appearing at a time. The last wave was in 1914, at which time about a dozen books came out. Tone is the main thing in the singing voice, breathing is secondary and of secondary importance.

RUPTURE OF THE UTERUS IN CESAREANIZED WOMEN*

WITH REPORT OF A CASE RUPTURING AT END OF
EIGHTH CALENDAR MONTH

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In a survey of the literature about one hundred cases have been reported. Undoubtedly there have been a number of others, but the aggregate would represent but a small percentage for this accident following hysterotomy.

Novak¹ and Rongy² state that two or three per cent. of cesareanized women suffer a rupture later and that the mortality to the mothers is fifty per cent. and ninety per cent. for the babes.

This percentage for rupture, although small, is a constant menace to the patient who later becomes pregnant and a source of apprehension to her attending physician until the pregnancy has been terminated. His plan of procedure will depend upon a number of factors and his clear perception and skillful application of them will in a great measure be the means of bringing him success or failure.

If the primary cesarean had been performed for a maternal dystocia then naturally a secondary one will be necessary; but the patient is still in danger of rupture since this accident occurs any time during the last six weeks of pregnancy, either before or shortly after the inauguration of labor. This latter factor is of supreme importance and worthy of constant consideration on the part of the attending physician. If the primary cesarean had been performed for other reasons; for example, eclampsia or placenta previa; then, if in his judgment the uterine scar is strong, he may, with justice to himself and patient, give her a chance to be delivered by normal uterine contractions through the natural channel, having constantly in mind the serious consequences of a rupture of the uterus and not permit his patient to be subjected to a long and tedious labor. Of the strength of the scar he can not be certain despite the fact that the previous postoperative convalescence was without sepsis, the primary cesarean was elective, and the operative technique perfect.

The integrity of the scar in the uterus is the crux of the situation. A perfectly healed scar with regeneration of muscle fibres throughout the incised muscle tissue giving a uterine wall its former strength is a consummation greatly desired, and therefore, our efforts should be concentrated upon this important detail to procure, if possible, such a result.

Mason and Williams³ after a series of experiments on guinea pigs conclude that a carefully sutured and united scar is even stronger than uterine muscle and will stand any strain which can be endured by the uterine muscle.

L. I. Breitstein⁴ from a series of experiments states, in union by first intention the muscle fibres have completely regenerated themselves and show a normal structure. The picture, however, is entirely different when healing by second intention takes place. The scars are thin, the result of gaping or sloughing of the inner layers and both margins having separated and healed by granulations.

J. R. Losee⁵ says uterine muscle will regenerate completely if there has been perfect coaptation of incised tissues, if there has been no infection and if the cut surfaces once approximated are not separated by blood clot or lochia.

In an analysis of these conclusions we find the following become very pertinent factors in the formation of a weak scar: Inclusion of the decidua between the sutured muscle; placing the muscle suture too far apart; incomplete closure of muscle layers due to retraction of muscle fibres after being incised; hemorrhage and shock of operation producing a lowered resistance to infection.

Implantation of the placenta over the scar is claimed by some writers to be the cause of a weakened scar, others maintain that if the union is perfect the implantation of the placenta would have no deleterious effect since it is only in a weak scar, as one healing by second intention, in which some granulation tissue is present, that this tissue is later invaded by the penetrating chorionic villi, thus producing a weakened area.

S. Marinacci⁶ emphasizes the danger when the scar has become invaded by chorionic villi and reports a case in which the bowel had become adhered to the scar. The chorionic villi had undermined and infiltrated the adherent bowel and the uterine wall, producing a hemorrhage and later an intestinal obstruction. While the

*Read before the Section on Surgery, Illinois State Medical Society, Springfield, May 7, 1924.

defect in the intestine was being sutured, there was a spontaneous rupture of the uterus.

Other causes given by writers are hydramnios, large fetus, a pregnancy occurring early after a hysterotomy.

The use of absorbable suture is considered a contraindication by some. J. N. Bell⁷ says regarding the use of chromic catgut that there is a formation around the sutures of small canals containing a serosanguinous fluid which may produce a faulty scar even where no infection exists, and advises the use of linen or silk. The majority of writers, however, see no ill effects from catgut and do not hesitate to use it.

At one time it was thought the location of the uterine incision, whether in the fundus or on the anterior surface, was an important factor, but this has been disproven.

Again, although a hysterotomized patient may be successfully delivered through the natural channels, it is not any indication that the scar may not rupture at a succeeding labor.

In a case reported by Lazard⁸ he says the patient had successfully gone through two rapidly succeeding pregnancies and long hard labors in the presence of a cesarean cicatrix to subsequently rupture with the third pregnancy before the onset of labor.

When we realize the uncertainties that are inherent in the healing of the scar we can readily appreciate the dictum: "Once a cesarean, always a cesarean." But is this statement true? The writer does not believe so, and to reiterate a previous statement, believes that if your faith in the integrity of the healed scar is paramount, then give your patient an opportunity to be delivered normally.

v. Leuwen⁹ reports, in a series of one hundred and forty-nine cesareanized patients, thirty-two were later delivered through the natural channel.

McPherson¹⁰ in fifty cases observed at a subsequent section that in forty-two the scar was not seen or was described as solid with no apparent thinning or stretching. These, undoubtedly, would have withstood the strain of a normal labor.

Symptoms of a rupture vary from the mildest, so as to make an early diagnosis difficult, to those of the most serious where the patient seems at once to be in extremis. It would be advisable to consider all untoward symptoms as

those of rupture or beginning rupture and not hesitate to operate.

In conclusion I would urge that the danger of hysterotomy be not minimized, neither should we consider it a contraindication in properly selected cases, believing as C. J. Kickham¹¹ that an ounce of prevention is worth a pound of cure, meaning, so far as possible in the individual case, avoid the *primary* incision and advise, instead of extending our indications, we should contract them.

SUMMARY

Rupture of the uterus in hysterotomized women is about two or three per cent, with a mortality of about fifty per cent.

A septic puerperium with a purulent vaginal discharge is *prima facie* evidence of a resultant weak scar.

All cesareanized patients should be hospitalized toward the latter months of pregnancy.

One successful normal delivery may be followed at the succeeding pregnancy with rupture.

If there is no maternal dystocia and no other contraindication patient may be given a chance to be delivered normally.

REPORT OF CASE

Mrs. L. R. C., aged 33 years, multipara. In 1915, after a long tedious labor patient was delivered of male baby with forceps. In 1918, was delivered of living child by cesarean section for placenta previa. Patient states that so far as she knows her puerperium was not accompanied with fever nor any infection. She was confined in the hospital two weeks. This was the first hysterotomy her surgeon had performed.

In 1920, she had a miscarriage at two months. She menstruated November 19 to November 24, 1920. February 3, 1921, she consulted Dr. W. M. Cooley of Peoria, who took charge of her and from whom the following history was obtained:

Her pregnancy advanced normally except for a trace of albumin which appeared in June. At 8:00 p. m., July 30, 1921, she telephoned Dr. Cooley that for the past two hours she had been having a few slight, irregular pains. He advised her to go to the hospital immediately where she could be given the proper attention should the occasion arise. Her confinement was not due until about August 26, according to her last date of menstruation and which was corroborated by Dr. Cooley after his physical examination.

She entered the hospital at 9:00 p. m. Pains were slight and ten minutes apart. At 9:30 p. m. pains were stronger and intervals shorter with a slight, bloody, vaginal discharge. She was seen at this time

by Dr. Cooley, who ordered her prepared for the delivery room.

While the nurse was preparing her she was suddenly taken with a severe, tearing pain in the abdomen followed by a cessation of regular labor pains.

She immediately developed marked symptoms of collapse; pulse rapid, thready and very weak, face pallid and covered with cold perspiration. Contour of the abdomen was irregular, quite unlike that of a normal, pregnant abdomen. On palpation different parts of the child could easily be felt.

She was given a hypodermic injection of ergot and pituitrin and a quart of normal salt solution by hypodermoclysis, and prepared for operation.

When I saw her, forty-five minutes later, she seemed to be in a hopeless condition. No radial or carotid pulse could be felt. Respirations were slow, shallow and sighing. Patient seemed bloodless.

Under a very light anesthesia, as the patient was in a semi-conscious state, the abdomen was opened and a large quantity of clotted and unclotted blood with a dead fetus and detached placenta were found. The uterus was about the size of a grapefruit, contracted and with the edges of the scar, extending from the fundus to the internal os, everted. There was no bleeding from the uterus.

The broad ligaments were clamped and a subtotal hysterectomy done. Time thirty-six minutes.

During the operation she was given normal salt solution intravenously and when the operation was completed her condition had greatly improved and she continued to improve and made an uneventful convalescence.

Unfortunately the amputated uterus was destroyed by an orderly and no information can be given concerning the scar.

The salient points are: The preceding hysterotomy was elective with no history of infection; rupture at the thirty-sixth week, shortly after the inauguration of the first stage of labor; the profound symptoms of shock and hemorrhage and the prompt improvement after the removal of the fetus and uterus.

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DISCUSSION

DR. W. A. N. DORLAND, Chicago: I think that Dr. Weber has taken a very sound and conservative stand in regard to rupture of the uterus following cesarean section. I have for a number of years believed that the axiom, "once a cesarean section always a cesarean section," is not always absolutely true. If there has been a spontaneous rupture of the

uterus it is apt to take place in the lower segment of the uterus. If in the previous cesarean section suturization has been complete—and I prefer in my suturization of cesarean section chromicized catgut—and if there has been no infection, I do not believe the tendency to rupture at a subsequent time will be in the line of the scar. I think the line of scar is a strong one. It is the lower uterine segment which stretches in labor and which is apt to give way. The proper thing to do is to keep these patients in the hospital for the last two or three months where they can be under constant observation, and can be promptly operated upon should rupture occur.

The literature is not very extensive on secondary rupture following cesarean section. There are such cases recorded. The accident in this case is generally due to infection or to imperfect suturization; but if properly sutured and the case properly managed, I do not believe there is much danger of subsequent rupture. Of course, in all these cases if there is a marked pelvic contraction, the treatment should be the Porro operation in order to avoid subsequent gestation with possible accident.

EARLY DIAGNOSIS AND TREATMENT OF TUBERCULOSIS OF JOINTS*

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Outline of Symptoms.

Outline of Complications.

Outline of Direct Diagnosis.

Outline of Differential Diagnosis (using spine as illustration.)

Outline of Treatment (using spine as illustration.)

Outline of Treatment of Complications.

Rules for Traction.

SYMPTOMS OF TUBERCULOSIS OF JOINTS

1. Limitation of motion.
2. Muscle spasm.
3. Limp: When weight bearing joints are affected or in the spine with psoas muscle irritation causing "the limp of incomplete extension."
4. Attitude, i. e.
Tip-toe walking to avoid jarring spine.
Military attitude in Tbc. of spine.
Resting chin in hands in Tbc. of cervical spine.
5. Pain:
Local.
Referred, i. e., in hip Tbc. pain referred to knee through obturator and anterior crural nerves.
6. Night cries. In children usually before midnight.

* Read before the Section on Surgery Illinois State Medical Society, Springfield, May 7, 1924.

7. Swelling, due to exudate, with obliteration of joint landmarks.
8. Atrophy of bone and muscle:
 - Disuse.
 - Neurotrophic.
9. Deformity due to:
 - Bone destruction.
 - Contraction of soft tissues.
 - Contracture of soft tissues: muscle, tendon, fascia, joint capsule.
10. Tenderness and sensitiveness.
11. Increased joint tension.
12. Increased local temperature.
13. Roentgenography:
 1. Haziness or clouding of joint space.
 2. Narrowing of joint space.
 3. Bone atrophy.
 4. Bone destruction.
 5. Bone production.
 1. Secondary infection.
 2. Calcification of exudate.
 3. Periosteal Tbc.
14. General symptoms:
 - Weakness, malaise, anorexia, anemia, afternoon temperature.
15. Tuberculin tests:
 - Epidermic—Pirquet. May not be of much value.
 - Hypodermic—Mantoux; not reliable.
 - Ophthalmic—Calmette, m.i. of 1 to 100 sol. in 3-4 hours, conjunctivitis; beware of ulcer and scar.
 - Inunction—Moro.
16. Aspiration. Tubercle bacilli in joint fluid or abscess.
17. Biopsy test. Excision of bone, cartilage and synovia for microscopic examination.
18. Guinea pig inoculation test.
 - A. Injection of aspirated fluid or pus.
 - B. Implantation of synovia, bone or cartilage and reproduction of tuberculosis in guinea pig.

COMPLICATIONS

19. Abscess—sinus.
20. Secondary infection.
21. Amyloidosis.
22. Paralysis.
23. Metastasis.
24. Other Tbc. foci:

- Glands.
- Lungs.
- Kidney.

DIAGNOSIS OF TUBERCULOSIS OF JOINTS

Direct diagnosis is based on symptoms outlined above.

Differential Diagnosis is based on:

1. History: Age, Environment, Trauma.
2. Physical examination, including search for other foci.
3. Roentgenography.
4. Tuberculin tests.
5. Aspiration of joint or abscess.

6. Biopsy test.
 7. Guinea pig inoculation test.
 8. Therapeutic test of treatment.
- The only positive diagnosis is made as follows:
1. By finding the tubercle bacilli in the aspirated fluid or pus.
 2. By injecting the fluid or pus into a guinea pig, producing tuberculosis and proving it microscopically.
 3. By finding tubercle bacilli in the synovia, cartilage or bone.
 4. By transplanting into a guinea pig synovia, cartilage or bone tissue, producing tuberculosis and proving it microscopically.

DIFFERENTIAL DIAGNOSIS OF BACK CONDITIONS

A. Children.

B. Adults.

A. Civil.

B. Industrial.

A. Cervical.

B. Dorsal.

C. Lumbar.

D. Sacral.

E. Sacro-iliac.

F. Coccygeal.

DIFFERENTIAL DIAGNOSIS OF SPINE CONDITIONS

Rickets: A disease of childhood, during dentition period. (Tbc. rare under 2 years, unless associated with other focus of Tbc.)

Long Round Curve. (Tbc. usually short, angular curve.)

In Rickets, the deformity is easily corrected because there is:

- Not an osseous destruction.
- No muscle spasm.
- No contractures.
- No exudate.
- Less painful.
- Lacks spasm.

Other evidence of Rickets: Rosary, Square Head, Epiphyses irregular and broad, Pot-belly, Harrison's Groove, Knock-knees, Bow-legs, coxa vara, Blood Chemistry.

X-ray of tibia shows thickening of cortex on concave side. (In syphilis thickening is on convex side. "Syphilis is a more *verging* disease").

Syphilis: 1. Gumma:—Painless unless periosteum is involved.

2. Erosion of cartilage.
 3. Diffuse periosteal thickening under anterior spinal ligaments.
- Not painful.
 - All symptoms not so marked.
 - Kyphos rare.
 - Stiffness less.
 - Other foci.
 - Wassermann.
 - Therapeutic test.

Charcot Spine.

Carcinoma: Never primary in spine, therefore search for primary or history of same.

Metastatic from *breast*, prostate, thyroid, adrenal, G.-I. tract.

Age: Past 40 years.

Most painful of all spine conditions.

Tenderness and sensitiveness extreme.

X-ray Ca. does not invade joint.

X-ray therapy usually relieves severe pain more successfully than morphin. (At post-mortem spine cuts like cheese.)

Osteoarthritis: Adults.

Painful along distribution of spinal nerves.

Pain often unilateral.

Absence of kyphos.

Not so painful.

Not the pain or spasm as in Tbc.

In Tbc. flexion increases and extension relieves pain; in osteoarthritis extension increases pain and flexion relieves.

X-ray: Atrophy, hypertrophy or both.

Typhoid: History of typhoid; during convalescence:

Less spasm.

Less pain in back.

Less sensitiveness.

No kyphos.

Many vertebrae affected.

A periarticular inflammation.

X-ray: Atrophy, hypertrophy, or both.

May appear after prophylactic typhoid inoculation.

Scoliosis: Sometimes mistaken for Tbc.

Types: 1. Postural. 2. Structural.

Etiology: 1. Congenital. 2. Acquired.

1. Pelvic disbalance.

2. Disease i. e. empyema.

3. Infantile paralysis.

A flexible spine usually.

Rarely painful.

X-ray reveals no disease of spine but deformity.

Osteomyelitis: Not so common.

History: Onset acute. High fever. Leucocytosis.

X-ray.

Exploratory operation.

Hysteria: 1. Disproportion between subjective symptoms and clinical findings.

2. Other stigmata of neuroses.

3. Less rigidity except voluntary muscle spasm.

4. More pain.

5. Pressure over transverse process, not so painful; over spinous process, more painful. (Not true in Tbc.)

6. X-ray negative.

Pseudohypertrophic Muscular Paralysis:

1. History: Age. Late walking. Do not play with other children.

2. Examination: Enlarged calves. Walking on toes. Instability. Lordosis. Telescoping of head between shoulders. Climbing up on legs to rise from floor.

X-ray skull: Pineal gland shadows (Timme). Other bones negative.

Types: 1. Calf type. 2. Face type. 3. Scapulo-humeral type.

Malingering: You cannot convince the judge that a man is a malingerer unless the judge himself believes it.

General impression made by patient.

In obtaining history, approach from various angles.

Relocation test: Previously marked areas cannot be relocated with accuracy.

(Real traumatic areas can usually be localized rather sharply by patient.)

(Non-traumatic areas are usually diffuse with intervening normal areas of wide separation.)

Normal gait.

Normal rising.

Normal sitting.

Watch patient undress, especially removing shoes and socks.

No involuntary muscle spasm.

Mannkopf's test: Pressure over a painful area increases pulse rate. Value is questionable.

Exaggeration: A definite condition. Exaggeration of a real condition.

Neurasthenia: Other evidences of neurasthenia make the diagnosis. Negative X-ray.

Camptocormia: Listing of the body. Neurosis. War. X-ray negative.

Railway Spine or Erickson's Spine: R. Greenback poultice.

Kümmel's Disease: Kümmel's Disease or Post-Traumatic Spondylitis, described in 1895.

Etiology: Trauma, direct or indirect.

Pain, tenderness and sensitiveness often mild.

Stage 1. Initial injury with varying degree of shock. 2. Relative well being. Resumes occupation. 3. After weeks, months or 2 years, Kyphos, pain, local or referred.

Compression fracture may or may not exist.

Lateral X-ray important.

Meningitis: Tbc. Other forms. Lumbar puncture occasionally followed by rigid lumbar spine.

Fracture: History. Examination. X-ray.

Dislocation: History. Examination. X-ray.

Pernicious Anemia: History. Blood picture. Physical examination.

Multiple Myeloma: Age. Rare in young children. Bence-Jones protein in urine. Present in 50 per cent of cases.

X-ray: Long bones. Skull. Ribs. Destructive areas never become large.

Spine Bifida: Real, Occult. X-ray.

Spondylolisthesis: Exaggerated lordosis.

X-ray lateral view shows forward dislocation of 5th lumbar.

Other conditions to be differentiated but cannot be discussed here because of lack of time:

Lumbago.

Neuritis.

Scheuermann's vertebral epiphysitis.

Cord Tumor.

Myelitis.

Hemorrhage into the spinal cord.

Back strain.

Back sprain.

Sciatica.

Wry neck or Torticollis.

Female Pelvic Conditions.

Abdominal conditions.

Genito-urinary conditions.

Disturbances of other joints.

Very rare conditions:

- Actinomycosis.
- Blastomycosis.
- Oidiomycosis.
- Echinococcus.

TREATMENT IN GENERAL OF TUBERCULOSIS OF JOINTS

- A. Prophylaxis.
- B. Cure.

Indications.

1. Relief from effects of gravity.
2. Relief from weight bearing.
3. Relax muscle spasm.
4. Relief of pain.
5. Reconstruct anatomy.
6. Retention—prevent motion.
7. Extension.
8. Relief of abscess.
9. Treatment of sinus.
10. Build up general resistance.

Methods of Meeting Indications.

1. Horizontal fixation.
2. Recumbent support.
3. Traction.
4. Hygiene.
5. Heliotherapy and its substitutes (various lamps).
6. Tuberculin.
7. Operation.
 - A. Removal of TBC focus.
 - B. Removal of affected bone, i. e. astragalus, patella.
 - C. Treatment of abscess.
 - x. Puncture and aspiration.
 - y. Injections (Calot).
 - z. Incision and evacuation.
 - D. Ankylosing Operations.
8. Ambulatory Support.
 - A. Plaster.
 - B. Braces.

TREATMENT IN GENERAL OF TUBERCULOSIS OF JOINTS

Treatment:

- A. Prophylaxis.
- B. Cure.

Indications:

1. Relief from effects of gravity.
2. Relief from weight bearing in weight bearing joints.
3. Relax muscle spasm.
4. Relief of pain.
5. Reconstruct anatomy, i. e. spinal curves, hip, etc.
6. Retention—Prevent motion.
7. Extension.
8. Relief of abscess.
9. Treatment of sinus.
10. Build up general resistance.

Methods of meeting indications:

1. Horizontal fixation, i. e. Bradford frame, Whitman frame, inclined plane, etc.
2. Recumbent support.
 - Plaster.
 - Braces.
3. Traction.
 - Traction Rules:
 1. Head.
 2. Leg.
 3. Abduction leg.
 4. Knee.
 5. Arm.
 6. Arm abduction.

RULES FOR TRACTION

Head and Neck Traction:

1. Halter must fit snugly so that pull is exerted on chin and occiput.

2. Spreader wide enough to prevent aching of jaws.
3. Traction must be in long axis of body.
4. Head of bed elevated eight inches.
5. If patient can stand full weight at night, increase during daytime. Some weight on all night.
6. Be sure there is free play of rope and spreader.
7. Remove all pillows from under head as fast as patient can stand it.

Straight Leg Traction:

1. Traction in long axis of tibia. (Occasionally femur, or both.)
2. Elevate foot of bed eight inches.
3. Long roll of blanket material supporting lower leg, keeping heel off the bed. Pin both ends of roll to the sheet.
4. Be sure there is full play of rope and spreader, no friction by bed clothes.
5. Patient can stand more weight during daytime.
6. Watch malleoli and heels for pressure.

Abduction Leg Traction: See leg traction and add.

1. Patient kept on opposite side of bed.
2. Perineal strap exerting traction on opposite side and fasten to the head of the bed.
3. Thick felt pad in perineum.

Knee Traction:

Same as Leg Traction except that all pull is exerted below knee.

Traction in long axis of tibia.

Arm Traction:

May use Jones traction arm splint or adhesive plaster traction with weight and pulley.

Abduction Arm Traction; Shoulder Traction:

1. May use aeroplane splint.
2. Brickner position with cuff around wrist and tied to head of bed.
3. Weight and pulley traction by means of cuff of felt around upper arm, rope, pulley fastened to head of bed and weight suspended.

When a patient with traction on is ordered to plaster room, x-ray room or operating room do not remove traction if there is a painful joint because of the danger of recurrence of pain and muscle spasm. If no painful joint and patient is going to plaster room or operating room, remove adhesive with benzine or gasoline. Follow with alcohol to prevent benzine burns.

Note:

Materials used for making traction:

1. Zinc Oxide adhesive.
2. Moleskin adhesive.
3. Resinous glue on Swansdown (Shiver's Plaster).
4. Heussner's or Sinclair's glue with canton flannel.
5. Celluloid dissolved in acetone making a cream, and canton flannel. (Moving picture film glue.)
4. Hygiene: 1. Food. 2. Sunlight. 3. Fresh air.
5. Heliotherapy and its substitutes (various lamps).
6. Tuberculin
7. Operation: Removal of Tbc. focus. Not often possible. Removal of affected bone, i. e. astragalus, patella. Treatment of abscess.
 1. Puncture and aspiration. Usually must be repeated.

2. Injections (Calot's solution) (Lugol's solution) etc. Value?
3. Incision and evacuation.

Indications: For Opening Abscess.

1. Danger of spontaneous rupture and secondary infection.
2. Secondary infection.
3. Pain.
4. Large size.
5. Peculiar location, interference with mechanical treatment.
6. Pressure on nerves.
7. Spreading rapidly, undermining tissues.
8. Exhaustion.
9. Amyloidosis.

Operation:

1. Strictest asepsis.
2. Small valve-like incision.
3. Evacuation, slowly because of disturbance of osmotic balance.
4. Irrigation with weak (cherry red) iodine solution Dakin or mercurochrome solution.
5. Tight closure using silk worm unless secondary infection, then drain.

Treatment of Sinus:

Pastes (Calot) (Beck). Value?
 Mercurochrome 2% daily irrigation.
 Heliotherapy.
 Roentgenotherapy.

Ankylosing Operations:

Knee.
 Hip.
 Elbow.
 Wrist.
 Spine.
 Hadra-Wiring Spinous processes.
 Lange-Metal rods.
 Hibbs.
 Delageniere-Lewin.
 Albee.
 Halsted rib graft.

Treatment of Paralysis in Pott's Disease:

Traction.
 Immobilization.
 Operation.
 Hibbs.
 Albee.
 Laminectomy.
 Laminotomy Fraser (Edinburgh).
 (Only explanation of immediate relief following operation is hemorrhage or decompression).
 8. Ambulatory Support.
 Plaster.
 Braces.

DISCUSSION

DR. D. C. STRAUS, Chicago: I wish to dwell upon two points only. The first is in regard to the x-ray diagnosis of tuberculous lesions in bone and the other is in relation to heliotherapy.

In some new books on bone and joint disease which I have recently read I have been struck by the very incomplete and inaccurate descriptions of the roentgenological findings given under the chapters dealing with tuberculous disease of bones. The roentgenological findings are very characteristic. New bone formation in tuberculosis occurs only in the shafts of long bones, never in flat bones, and new bone deposits in the case of long bones is usually only noted in relation to the metaphysis, that is, at the junction of the shaft with the epiphysis. Not only is the localization of the new

bone formation characteristic, but the type of bone deposits likewise is typical.

The new bone deposition in tuberculosis presents a lamellar structure. The lamellae are delicate and each represents an exacerbation of the disease. This type of bone deposition is quite different from that seen in osteomyelitis. The new bone deposit in osteomyelitis is characteristically amorphous, that is, shows no structure, and may be compared to mortar thrown against the bone.

The third differential point is that in tuberculosis new bone deposit occurs only in relation to the bone focus and for this reason often occurs only about a portion of the shaft, whereas in osteomyelitis the infection is in the center of the shaft of the bone and the new bone deposit as a rule completely surrounds the shaft in the form of a cuff.

In tuberculosis bone absorption is the characteristic and outstanding finding, and always exceeds new bone formation, whereas, in osteomyelitis absorption of bone only occurs late, and the typical and early finding is the deposit of new amorphous bone.

The other point I wish to stress is the extreme value of heliotherapy in tuberculosis of the bone, where this treatment is extended over a sufficiently long period of time. When I was abroad some years ago, the value of heliotherapy was impressed upon me in several of the most important clinics and I was strongly advised to visit Rollier's Clinic in Leysin, Switzerland.

Professor Payr at Leipzig told me that he was sending to Rollier cases of tuberculosis of the elbow joint, in which he did not think he would ever obtain motion and in which he did not feel like doing a resection. He told me these cases were returned with full motion. He had also sent cases of tuberculous peritonitis, which had done remarkably well.

When I reached Paris Professor Tuffier was equally enthusiastic and told me not to miss Rollier's Clinic. I spent a day with Professor Rollier and I was impressed with the excellent results he was getting.

While I know the work is being done here, I have not followed the results in detail. However, I am certain that heliotherapy is a very valuable method of treatment in cases of surgical tuberculosis. The exposure to the sun's rays has to be carried out daily over a period of months, usually even a year or a year and a half. But in patients who can afford to remain away from work for this length of time and pay the price which this type of treatment entails, I am sure that the treatment is very well worth it. But in patients who cannot afford this economic loss, operation is the better method, but even when operation is resorted to, heliotherapy is a valuable adjunct and should be resorted to much more generally than is now the case.

In any locality where the sun does not shine very many months in the year, and during certain seasons when there is a dearth of sunlight, heliotherapy can be carried out by means of the so-called Alpine Sun Lamp, Ultra-Violet Lamp, the Mercury Vapor Lamp or the Air-Cooled Quartz Lamp.

DR. PHILIP KREUSCHER, Chicago: I wish to emphasize what the doctor said about the difficulty of early diagnosis in tuberculosis of the joint. You get in the early case only a very slight clouding, sometimes not even that. I have seen a well-advanced case of tuberculosis of the knee joint where the stereoscopic x-ray showed no destruction of the bone surface, no destruction of the head of the bone and here we are inclined to make a diagnosis of hypertrophic synovitis rather than tuberculosis. I did a complete synovial resection and found a very marked synovial condition with synovial membrane thickening to one-half or three-fourths of an inch and still I thought I was dealing with a hypertrophic synovitis. There was no destruction of any of the cartilaginous surfaces whatever. The synovial tissue examinations in the laboratory showed many tubercle bacilli in the synovial membrane. I believe we are coming more and more to doing resections whether it is of the synovial capsule or whether it is of the bone—not waiting until the entire joint surface has been destroyed. In the closed treatment I wish to emphasize what the doctor said, that is, early immobilization, especially with traction keeping the joint surfaces apart, not sufficiently severe traction to pull the life and soul out of the muscle and tendons, but mild traction that will keep the muscles quiet and the joint immobilized.

DR. PHILIP LEWIN, Chicago (closing the discussion): I want to thank Dr. Straus and Dr. Kreuscher for their discussions.

What Dr. Straus has said about new bone formation I believe is entirely true.

Just a word about heliotherapy. Pioneer work was done, as he has said, by Rollier in Switzerland. In America excellent results have been secured at the J. N. Adam Memorial Hospital at Perrysburg, N. Y., where they carry out the treatment very much as does Rollier, but they have not the natural environment that Rollier has in Switzerland. They are not treating tuberculosis of the knee, spine or hip; they are treating a patient who has tuberculosis of the joint and they treat him generally. They are not aiming to treat tuberculosis of the joint, they are treating the patient who has tuberculosis of the joint. If any of you are going through Buffalo it will be well worth your time to visit this hospital in Perrysburg. When heliotherapy cures tuberculosis it does it usually with a good movable joint. Surgery is aimed at producing just the opposite—rigidity, a non-movable joint.

What Dr. Kreuscher said about the patient on whom he did a complete synovectomy impresses me with what I have been trying to emphasize here this afternoon, namely, the difficulty of early diagnosis. The only positive diagnosis is made: 1. By finding the tubercle bacilli in the aspirated fluid or pus. 2. By injecting the fluid or pus into a guinea pig and producing tuberculosis in the guinea pig and proving it microscopically. 3. By finding the tubercle bacilli in the synovia, cartilage or bone. 4. By transplanting into the guinea pig synovia, cartilage or bone tissue and producing tuberculosis in the guinea pig and proving it microscopically.

CRANIO-CEREBRAL INJURIES, CONCUSSION, COMPRESSION TREATMENT*

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Cranio-cerebral injuries is a timely subject. On account of the present day dangers to life and on account of accidents that may happen at any time, by the colliding of automobiles on our streets or hard roads and grade crossings, we may expect at any time to take charge of one of these injuries.

A great many of these cases are trivial and demand only symptomatic treatment for the patient to react from shock. I want to impress upon the minds of those that are listening to this paper that the unimportant appearance of the scalp wound and of the bony lesion underneath does not indicate the severity and gravity of the damage that can be done to the inner table of the skull and especially to the brain.

Cranial injuries are very deceptive in the appearance of the external wound. The apparently harmless appearance of the wound can never be taken as an index to the severity of the damage that may be done to the deeper structures.

The damage done by the injury may range from the insignificant to the most extensive brain laceration. Every accident that may happen to the head is in some degree associated with a cranio-cerebral injury. Direct violence is generally the cause. The general causes of direct violence of these injuries are results of falls, automobile accidents, blows, street-cars, trains, motorcycles and gunshot wounds, not forgetting forcep injuries at childbirth. Indirect causes may be transmitted to the head from a fall on the feet or buttocks, or a blow on the jaw.

A proper understanding of the mechanism of skull fracture will help us to understand more definitely the pathology that must be treated. The skull may be regarded as a bony box, made up of two layers of bone with cancellous tissue between, filled and containing a rather elastic doughy substance, the brain, which in turn is

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surrounded by a layer of fluid, the fluid being walled off by an envelope of several membranes; the dura, arachnoid and piamater.

The bones are flat and irregular in shape, not very thick, and are closely but not entirely immovably joined together. Several bony ridges pointing toward the base and acting as buttresses to the vault seem to direct impacts downwards.

The vault of the skull is slightly elastic and can be made to change shape by impact without causing fracture. In the production of fracture without cerebral injury the impact is one acting upon a local area of the skull which cracks or splits or indents it. Carried further these impacts will cause added damage to the brain.

If violence is not too great to the skull, no fracture occurs, but if the violence is great enough to carry the skull beyond the normal limits of elasticity it will burst or break.

Fracture of the internal table without involvement of the external table is possible, but should not be regarded as such unless proven by x-ray or exploration. Most of these cases when they do occur become infected finally and die if allowed to exist.

Subjective Symptoms: These depend entirely on the degree of the injury whether it is mild, moderate or severe and whether they express themselves as those with or without intracranial damage.

The injury may be limited to a single nerve, to a sinus, to a localized or comparatively small area of brain substance or the entire brain may be disorganized and lacerated and bring about a comatose condition that results in death almost immediately.

Cases with no signs referable to nervous system, at the time of examination, can be divided in two groups. Those cases with quickly disappearing symptoms that by the time the hospital is reached evidence of neurologic disturbance is not found. The mild cases such as scalp contusions and lacerations in whom fracture is not suspected but can be later demonstrated by x-ray. These make up the largest number.

The history and subjective signs nearly always tell us of a fall or blow on the head that is followed by little or no unconsciousness. If temporary unconsciousness is experienced it may and usually is associated with vomiting, signs of shock, such as pallor, cold extremities, de-

pression of respiration and of the cardio-vascular system. Symptoms of the mild injuries may be no more than dizziness, staggering, seeing stars, nausea and mild shock. These general symptoms reflect a diffuse interruption of cerebral function that are found following a contusion of the head with initial over stimulation of the brain followed later by depression and have most to do with unspecialized functions. We usually speak of this train of symptoms as concussion.

It is very important that the surgeon should recognize definitely when concussion exists, and when compression begins. True concussion is a state of temporary loss of consciousness only. Any head injury may exhibit this phenomenon to a very mild or extreme degree. In the mild cases the symptoms disappear quickly and the patient seems none the worse for them, in the severe forms the period of unconsciousness is extended to a considerable interval and may be followed by severe headaches continuing for weeks and months. The time varies as to the degree of concussion from a few minutes to several hours, according to whether it is mild or a severe injury.

In some cases the concussion is of such extreme degree as to result in almost immediate death, the sudden interruption of the vital functions are of such profound nature as to make their restoration impossible and dissolution in these cases takes place, autopsy showing no pathology in the brain tissue.

A period of relapse after temporary consciousness or a secondary unconsciousness takes the case out of the concussion class and indicates compression from some cause; usually hemorrhage or edema or depressed fracture.

Objective Symptoms: Signs of shock exist, the scalp may show areas of contusion or circumscribed hematomas, simulating a depressed fracture. Differentiation can be made by noticing the fact that the former has no hard or irregular edges and that the edges can be rubbed away and pressure made in the center shows normal skull beneath.

Through a wound the fracture can be made visible or can be palpated with fingers.

Echymoses appears at a distance from the fracture site especially if the case is examined usually from two to seven days after the accident. It is typical in the eyelid or over the mas-

toid in basal fractures. Hemorrhage from the nose when present is usually unilateral. The pharynx may show oozing of blood or ecchymotic spots. The ear may show dry or fresh blood and often straw colored cerebral fluid. The periosteum may be torn, folded in or undamaged. The cranial bones may have a linear or stellate line of fracture or the lines of fracture may be numerous as in a case I saw of a boy falling out of an upstairs window to the sidewalk, lighting on his head, in which the skull of this patient resembled a crushed eggshell.

In head injuries you will always get signs of contusion, concussion or compression.

Contusion most likely will give local evidences with or without concussion.

Concussion is immediate unconsciousness as the essential sign and is always transitory. Consciousness returns, but if there is progress of symptoms or a recurrence of unconsciousness it is concussion no longer, and we have compression. It is necessary to remember that concussion is only a temporary affair, a few minutes or hours at most, but if after a lucid interval unconsciousness again returns we are then dealing with compression.

Compression is a later manifestation with progressive signs whose progress is marked more or less sharply into stages. Compression appears usually very soon after injury. An initial stage of concussion cannot always be distinguishable. Hemorrhage is nearly always the cause of compression and comes most commonly from the middle meningeal artery or its branches, but edema also can be the cause.

The signs that are typical of intra-cranial compression following an injury to the head are:

1. Progressively increasing stupor.
2. Slowing of the pulse and respiration that is progressive.
3. A rise of blood pressure that is followed by a fall in the later stages.
4. Swelling of the optic nerve heads greater on the side where the pressure exists.
5. Contracted pupils which dilate in final stages.
6. Cheyne-Stokes respiration.
7. A point in diagnosis I want to mention here, that I have not found in text-books, is that on the side opposite the lesion that is caus-

ing the pressure, if the temperature is taken in the axilla it will show $\frac{1}{2}$ to 1°F higher than the side where the lesion exists. This diagnostic sign can be relied upon and indicates to the surgeon where decompression may be done and the side where the lesion that is usually a blood clot may be removed.

I have seen this diagnostic sign proven in a number of operations and I consider it one of the most valuable diagnostic aids where no external evidences of injury is to be found and pressure is known to exist.

If compression is allowed to persist it progresses to a very slow pulse sometimes under 40 and with corresponding respiration. Pressure exerts its influence, first upon the cortex of the brain traveling on through the cerebral centers, until the medulla is reached and the vital centers that it contains are pressed upon. A sudden drop in blood-pressure and dilatation of pupils are signs which indicate medullary involvement. This condition should be recognized before these centers in the medulla are pressed upon, for before this, relief is possible, but after a drop in blood-pressure it is doubtful and a fatal ending usually occurs, if decompression is done at this late period.

It is very important to use proper judgment as to the relative significance of each stage in the clinical picture of compression. This is often difficult, but you can remember that under all circumstances, that progressively increasing intracranial compression demands immediate operative treatment.

TREATMENT OF CONCUSSION

In concussion, bring about a reaction if possible with inhalations of aromatic spirits of ammonia. Do not use alcohol as it excites the brain. Inhalations may be given by pouring a few drops on a handkerchief or gauze and holding it near the nose and surrounding the patient who lies in bed if possible, with hot water bottles and by the administration of enemata of hot coffee or hot saline. Mustard should be applied over the heart. It is not best to give liquids by mouth until the patient can swallow easily. Until he is able to swallow rely on hot enemata and inhalations of ammonia. I do not think it best to give hypodermics of strychnine as a stimulant. Place the patient in bed in a quiet room and watch him.

If reaction takes place soon or at most in a few hours, if it is concussion and the patient is suffering from excitability, headaches and nervousness, apply cold to the head, give arterial sedatives, diuretics and a purge. For days and weeks according to the case, insist on a quiet easy life. For a great many weeks after a grave concussion the patient should keep away from business and be under observation of the possibility of infection and abscess of brain arising and because these patients are quite liable to develop hysteria, neurasthenia or insanity. Use plain diet with a minimum of meat and an occasional purge and secure sleep if necessary with bromides. Sleep can sometimes be obtained by simple measures as administration of a glass of warm milk, a hot water bag to the abdomen or feet or applying a mustard plaster to the back of the neck for a short time. If obstinate wakefulness exists of course you must resort to the bromides and chloral, trinitol and other hypnotics. Lately I have found that luminol works well and surely in cases of this kind. Morphin is avoided as much as possible for it produces venous congestion of the brain, although I know a great many men use it.

In compression it is always advisable as a routine to do a lumbar puncture with the hope it will relieve pressure and as a diagnostic aid.

If signs of compression persist it is best to open the skull as the cause may be a clot. If the damage seems to be localized it is always best to incise the scalp and inspect the bone for fracture. If a depressed fracture exists and the symptoms are serious, trephine at once and drain the dura if any product of inflammation is present. In any severe contusion I think it best to incise the scalp and search for fracture.

All cases of head injury showing symptoms should be X-Rayed but sometimes linear fractures are not visible on the plate.

TREATMENT OF COMPRESSION

This depends entirely on the cause of the compression. The symptoms indicating pressure may be due to a number of conditions. Symptoms of compression are found in edema due to contusion, abscess of the brain, tumor of the brain, intracranial hemorrhage, foreign bodies, exudates due to inflammation and in fracture with depression. Symptoms of compression express impairment of

cerebral functions by impairment of the circulation of the brain substance. The impairment of circulation is the result of a lessening of the capacity of the cavity containing the brain, its coverings, the blood vessels and the cerebral spinal fluid.

If a brain tumor or abscess or blood clot, or portion of depressed bone occupies space previously occupied by brain matter, there is less room within the cranium to contain these special structures, the brain is necessarily squeezed, in other words, and the circulation is bound to be greatly impeded according to the amount of space taken up, previously occupied by the brain and its structures. This condition is compression. If compression continues all the activities of the brain from the cortex to the medulla are entirely inhibited.

If the cause is hemorrhage either extradural or subdural it requires that the skull must be opened and the bleeding arrested. Coma from a depressed fracture demands trephining and elevation; foreign bodies should be removed; abscesses must be evacuated. Some tumors if accessible should be removed but in some cases decompression is all that is indicated.

In cerebral compression if death is threatened by respiratory failure, do artificial respiration and open the skull immediately over the supposed area of compression, or at least on the same side that compression exists. Anesthesia is seldom required until compression is relieved.

CONCLUSIONS

1. Apparently unimportant head injuries may have caused grave damage to the brain and require decompression operation later.

2. Every head injury shows signs of concussion or compression of a mild-moderate or severe degree.

3. It is of great importance to know when concussion ends and compression begins.

4. Operation for relief of compression should always be done before the danger signals of medullary involvements takes place.

5. Spinal puncture should be done on every case of compression as a routine for diagnosis and to relieve pressure.

6. Elevation of temperature in the axilla on

the side opposite the lesion is a valuable diagnostic aid in indicating to the surgeon the location to decompress.

7. Progressive increasing stupor, slow pulse, high blood pressure, contracted pupils and Cheyne-Stokes respiration indicates compression.

8. Decompression operation is indicated in all cases showing progressive signs and not relieved by spinal puncture and should be done before the vital centers in the medulla are involved which are indicated by sudden drop in blood-pressure, dilatation of pupil and impending death.

9. Recovery is possible if operation is done before danger signals arise but nearly always fatal if done after medullary involvement.

DISCUSSION

DR. C. U. COLLINS, Peoria: I agree with the essayist that this paper is timely because there is no doubt with an increase of automobiles and automobile accidents there will be an increase in the number of head injuries.

I am sorry he did not lay more stress on the lumbar puncture with the use of the mercury manometer to indicate the pressure of the spinal fluid because the pressure of the spinal fluid as indicated by the mounting of the mercury is a valuable guide. This is a very valuable agency to tell when compression begins. Some years ago I attended a meeting of the Chicago Surgical Society at the Alexian Brothers Hospital and Dr. M. L. Harris called attention to the fact that the patient with a fractured skull should be compelled to stay in bed with the head low for six weeks. If he gets up sooner the headaches and dizziness will persist for several months.

I would like to ask Dr. Greenleaf how he accounts for the temperature being higher in one axilla than the other.

DR. P. E. GREENLEAF (closing the discussion): In answer to Dr. Collins, I will have to say I have not used the mercury manometer nor have I seen it used. It is a valuable instrument in my judgment, but does not or cannot always indicate the amount of pressure within the cranium. Examination of retina with an ophthalmoscope will indicate better the amount of pressure within the skull. Withdrawal of 5 or 10 c.c. of spinal fluid every few hours without a manometer when pressure is present is good treatment.

In answer to his second question, I am not a physiologist and the reason I can offer in explanation is that the nervous mechanism is inhibited to some extent on the side opposite the lesion and that would give a chance for metabolism to run riot. It does not occur immediately, but after 12 to 24 hours. You can always depend on it when temperature is present.

INCIPIENT CATARACT, ITS ETIOLOGY, PATHOLOGY, SYMPTOMS AND TREATMENT*

JAS. W. SANDERS, M. D.,
DECATUR, ILL.

Cataract is an opacity of the crystalline lens, its capsule or both.

Much has been written about cataract in the last few years, but the greater part has been about cataract operations, the formal technique of some one's method, post-operative complications and efforts to diminish them. We hope for advancement in the technique of operations until ophthalmic surgeons can promise with almost a certainty good results for those that necessarily require them. Even though surgical treatment should be necessary in many cases, the medical treatment of incipient cataract is an undeniable necessity and we should make every effort to obtain all the benefits possible with it. Probably 60 per cent. of incipient cataract can be held in check, improved or cleared up entirely if seen early and properly treated.

I am dealing with acquired incipient cataract only, excluding congenital and traumatic. Too many cases are not seen until allowed to advance far beyond the period of incipency for the following reasons:

First. Many oculists and most general practitioners advise those afflicted with cataract to wait until useful vision is lost or to hurry maturity of the cataract and have it operated on.

Second. Opticians or optometrists, not recognizing the diseased condition, so frequently try and try to correct the impaired vision with glasses while time is lost and cataract progressing.

Third. Osteopaths and chiropractors often promise benefit, arrest of progress, or absorption of the condition producing the opacity by massage of the seventh cervical sympathetic or by adjusting some supposedly misplaced vertebra and later the case comes with well-advanced cataract.

Fourth. The laity has been schooled to wait until the cataract matures or to hurry the maturity of the cataract for operation, causing them to hesitate or procrastinate until it has advanced far beyond incipency.

Gloomy prognoses were given not long ago in

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tuberculosis, Bright's disease, diphtheria, diabetes, scarlet fever, cancer, etc. Now tuberculosis in its incipency has not the terrors it formerly had. Bright's disease, if taken early, is often cleared up or controlled for many years. Diphtheria, uncomplicated, is almost invariably overcome if antitoxin is used before the patient is overwhelmed with toxins. Scarlet fever, much dreaded because of its many complications, fatalities and sequelæ, is being prevented or successfully treated with scarlatinal antistreptococcic serum. Diabetes, it seems, is being controlled in many cases by the use of insulin, yeast and diet and no doubt much more will be accomplished in this disease that is so often fatal; possibly many cured if taken early before too much damage is done to the cells of the Islands of Langerhans. With these and other diseases that formerly were not looked upon as curable, or feared for their sequelæ or outcome, being cured or controlled when taken early and under ordinary conditions; then why not renew our determination to control or clear up as many cases of incipient cataract as is possible?

By incipient cataract I mean beginning cataract or before 25 per cent. of vision is lost; when the vision begins to appear hazy, eyes tire easily, spots, threads or distorted objects appear and the crystalline lens shows cloudiness in any part of it with the use of ophthalmoscope.

The Gullstrand slit lamp may show cataract even earlier in the hands of one able to properly interpret the pictures seen with it, but so many have not this ophthalmological instrument of refinement, yet do have and can use the ophthalmoscope.

Etiology: The predisposing cause of acquired cataract is probably a constitutional one, while the exciting causes are many. Long continued excessive heat as we get in some industrial plants; heat and light combined, in industrial plants and some countries; bright lights that are rich in ultra-violet rays; some pathological conditions of the thyroid and parathyroids, probably a perversion of endocrine function; poisonous drugs, as ergot and naphtha; errors of refraction; diseases of the kidneys, Bright's disease and diabetes. Albumin is found in quite a percentage of the cases. Where due to diabetes cataract often occurs from 12 to 40-50 years of age and ordinarily forms rapidly. Rheumatism is a probable cause in which it may be due to the infec-

tion producing the rheumatism or to uric acid. Sclerosis and general senility are supposed to cause cataract by lessening the nutrition and the general lowering of vitality that is present. It is in this class of cases that we have primary sclerosis and those most likely to be progressive in spite of treatment.

Symptoms: Haziness, eyes tire easily, spots, webs, distorted objects, failing vision that the correction of errors of refraction does not relieve and cloudiness of any part of the lens shown with the ophthalmoscope.

Pathology: We usually have put forth the theory that the beginning alternations in the crystalline lens proper or its capsule are sclerotic or degenerative primarily; that the lenticular fibers shrink causing spaces between the fibers that fill with liquid and cause swelling of the lens, continued sclerosis and then degeneration of the sclerotic tissue.

Ball says diabetic cataract is attributed to the abstraction of water from the lens, this being due to the altered composition of the intraocular fluids. Some claim an early swelling sometimes preceded by a granular cloudiness. In some perhaps this theory of a primary sclerosis is true, as in arterio-sclerosis, where there is poor nutrition, general senile sclerosis evidenced by hardening of the arteries, extensive arcus senilis, etc. There is another class of cases, I think much larger, brought about by Bright's disease, diabetes, toxemia, exposures to extreme heat or cold, very glaring light containing much ultra-violet rays, naphtha, errors of refraction, etc., in which it is probable the primary departure from normal is hydration, the liquid having a different index of refraction, then shrinking of the fibers from the sclerosis that begins.

Badal proposes the theory of hydration primarily. Is it not possible that the blood contains an hydration ferment that causes a liquid accumulation in the lens that has a different index of refraction that causes the opacity? It has been shown that diabetic blood contains hydration ferments and the blood serum of rabbits that have been given naphtha injections contains an hydration ferment, and each of these, as you know, produces cataract. It is stated that diabetic cataract is a dehydration of the lens as liquids are drawn from the plasma, but is it not true that diabetics take great quantities of liquids and that the tissues are not dehydrated; besides

we frequently see cataract in diabetics with edema. It is not claimed that all cases of acquired cataract are primarily hydration in incipency, but it is believed that hydration is one of the first, if not the first, pathological change in the majority of the cases following a probable hydration ferment. Sclerosis of the albuminoid substance and degeneration comes when this abnormal condition is permitted to continue long or in senile, debilitated cases.

Treatment: Norris says: "In spite of centuries of trial, we have hitherto failed to cause the clearing up or the absorption of a cataractous lens either by external applications or inward medication and we are therefore obliged to resort to mechanical devices to get rid of the opacity, and again to obtain a clear pupillary space through which sharp images may be thrown on the retina when proper lenses are so placed before the eyes as to act as substitutes for that we have destroyed or taken away."

Wm. A. Fisher says: "Beginning opacities of the lens can readily be diagnosed with the ophthalmoscope; and, if the diagnosis can be made by the general practitioner, he may find the cause of the opacity by the examination of the urine. If the physician can make a diagnosis of beginning cataract, he can often treat his patient quite intelligently by giving attention to his general condition. If the urine is found negative and the vision not less than 20/40 a deep subconjunctival injection of 20 drops of 1 to 4000 cyanide of mercury after cocainizing and injecting 20 drops of a 2 per cent. solution of cocaine. If vision is less than 20/40 a good result can not be expected. If that is not congenital or caused by an injury, the probability of beginning cataract will be strong enough to warrant an examination of the urine.

According to Ball, treatment will depend upon the condition of the patient and the state of the lens. In early cases, with beginning lenticular opacity temporary correction of errors of refraction, regulation of diet and the employment of internal remedies will result in checking the progress. He says there is no medicine which has the power of removing cataract.

Casey Wood says: "Massage with various ointments, the subconjunctival use of potassium iodide, dionin, and other local treatment have been resorted to, but with little or no effect." He says the majority of cases of cataract are

progressive and when useful vision is lost a surgical operation is needed.

H. W. Woodruff believes in the internal use of the syrup of hydriodic acid or iodonucleoid for long periods of time with short intervals of rest. Wood now thinks this beneficial.

Badal, before the French Ophthalmological Society in 1902, proposed the use of iodide of potassium solution as an eye bath. He states from theory advanced by himself, that cataract is the result of an hydration of the crystalline lens and not, as had been declared before his researches, the result of a dehydration or sclerosis.

Pflugk employed daily or three times a week subconjunctival injections of potassium with dionin powder between injections.

Verhoeff and A. E. Davis have investigated serum and vaccine treatment for prevention and cure of cataract. Davis has attempted dissolving or absorbing cataract by the action of a cycolytic serum prepared by immunizing the blood of rabbits against human cataractous lenses and also normal guinea pig lenses. His conclusions are as given in the Year Book:

1. Mature cataract may be absorbed or liquified (at least, the cloudy cortex).

2. Mature cataract may possibly be retarded or entirely checked by its progress.

3. Immature cataract still in the striated stage did not show as much improvement as the mature cataract.

I believe that most incipient cataracts are produced by a systemic condition causing a ferment or toxic chemical that brings about hydration of the crystalline lens. Some cases, as those from arteriosclerosis or senility, may be sclerotic from the beginning on account of disturbed nutrition.

Degenerative changes necessarily take place in any or all after nutrition has been poor for a period of time. Believing in the hydration theory, due to ferments or toxins caused by systemic conditions and local disturbances, I try to overcome or correct the systemic troubles, such as intestinal toxemias, Bright's disease, diabetes, etc., and to overcome or correct local troubles as far as I can; such as correcting errors of refraction, correct conditions of light, heat, etc.

In addition, I use potassium iodide, syrup of hydriodic acid, trifolium compound internally for their alterative effect and to get the benefit

of their absorptive action to assist in removing the effusion in the lens and with local remedies to cause absorption and to increase the flow of lens lymph.

Locally, there have been many remedies proposed and tried. *Cineraria Maritima*, the much advertised specific, has been useless in my cases. Iodide of potassium, iodide of sodium in 1 and 2 per cent. solution used as eye baths twice a day for several minutes have been beneficial. Calcium iodide either in solution or in ointment has given good results, I think on account of the dehydrating effect of the calcium and absorptive or dehydrating action of the iodide. With these I use dionin ointment or powder twice a week at night for the osmotic effect. In many cases where there is excess of uric acid or where there is a rheumatic condition, in addition to trying to correct the systemic trouble, remove any focal infection that we find and use the iodides internally and locally, I use a solution of sodium salicylate locally and give large doses, 60 grs. of sodium salicylate, twice a week.

I do not use the subconjunctival injections of cyanide of mercury or iodide, because of the pain, the reaction, the fear the patient has for using these and the frequency of the visits the patient would necessarily have to make. It has been found that the iodides and salicylates are found in the aqueous and in the crystalline lens in a short time after giving them internally or using them locally as an eye bath; then why subject your patient to the subconjunctival injections, besides the patient can use them in the home whenever the oculist thinks necessary.

I believe the time is here when we can conserve useful vision for many that under the old idea of "wait until the cataract matures" would drive many to a period of almost blindness and ultimate operation. I wish to impress the following thought on your minds. See your cases early. See them in their incipency. You cannot cure tuberculosis in what is termed the third stage.

You are apt to lose your diphtheria cases if you wait 72 hours before using antitoxin. Your operable cancers can be cured if taken before any metastasis has occurred. So with cataract, many of them can be benefited, progress of others halted and many cleared up if properly treated both systemically and locally in their incipency or beginning.

ECLAMPSIA WITH CEREBRAL HEMORRHAGE IN THE PUERPERIUM*

L. C. KNIGHT, M. D.,
CARTHAGE, ILL.

Eclampsia is considered by some to be a fairly common disorder among pregnant women, but as it is generally conceded that it occurs but once among 500 cases and, as these figures are made up from hospital cases, it would seem that the ratio was really greater, as many are taken to the hospital because they are not doing well or because of the occurrence of a convulsion. Authorities also state that 10 per cent. of the eclamptic cases have cerebral hemorrhages so that one patient in 5,000 has this dangerous condition arise.

Apoplexy without eclampsia, during pregnancy, is a very rare condition, and a fairly comprehensive search of the literature reveals only a few cases. It is found associated with old standing syphilis, chronic nephritis, or valvular disease of the heart. The age of the average pregnant woman, and the state of health necessary for pregnancy to occur, precludes the possibility of many such cases.

While the direct etiologic factor in this condition is not known, there are a few facts that might attract our attention and cause us to think of this condition when they occur. Among these might be mentioned the occurrence of twin pregnancies, hydramnios, and greatly distended uteri from other causes. Seventy to eighty per cent. are said to occur in primiparae, and the latter half of pregnancy is the time that it most often occurs.

We have generally been taught to believe that eclampsia can be foretold by careful systematic examination of the urine, and this is generally true, but it is not always possible to prophesy eclampsia from this source. Williams tells in his text-book that cases will at times be going well when all at once, "like a bolt from a clear sky," a convulsion will occur. There is perhaps no complication of pregnancy more dreaded among those practicing obstetrics than eclampsia, and I am sure that there is no phase of obstetrics less understood. As evidence of this one has only

*Read before the Hancock County Medical Society, July 7, 1924.

to read over the different lines of treatment advocated, or the different theories propounded as to the cause of the condition, to be convinced of the lack of understanding on the part of the profession.

My chief purpose in writing this paper was to show that in spite of careful examination of the urine, and the exercising of other precautions, this disease may occur. I want to report the following case to illustrate this point:

Mrs. L., aged 39 years, a mother of two living children, aged 15 and 12, became pregnant in May, 1923. She reported for examination in November, and the usual pelvic examination and physical examination was made with negative findings. There was no history of serious illness, and there had been no trouble at the other pregnancies. At regular intervals she came in and brought a specimen of urine for examination, and at none of these examinations was anything unusual noted, except that she was rather large and pendulous in the abdomen, and at a few days before the confinement there was a fall in the specific gravity of the urine to 1012. There was another warning sign, aside from the faint warning contained in the urine, and this occurred about one week before the onset of labor. On this day she had visited a friend and found that she was feeling queer and that she could not call the name of her most intimate friend. This inability to express her thoughts lasted for a short time and then she cleared up. I did not hear of it for several days and at that time she seemed well, so I concluded the attack had passed, and congratulated myself because she had not had a more serious time, as aphasic attacks of this kind portend no good. This attack was probably elcamptonic in character. On Thursday, February 14, at 1:30 P. M., she went into labor and at 6 P. M. was delivered of a normal 6½ pound child. There was nothing, as far as I was able to determine, that was abnormal about the labor. There were no tears of the perineum or cervix. That evening she began to complain of headache, and when I visited her on the next morning she was found to be in a comatose condition which the practical nurse said had persisted the greater part of the night. There had been no convulsions that she had noticed. The coma was not deep and she could be aroused and would answer questions rationally. The coma gradually deepened and on the next day she could only be aroused with difficulty. She had not voided on Friday or Saturday and the catheter was used twice each day. On Saturday morning we withdrew 18 ounces, which was more than at any other time, as the usual amount was 8 to 10 ounces. Chemical examination of the urine disclosed no abnormalities, except the low specific gravity as before, and there were no casts found upon microscopic examination. On Sunday she seemed better and we were congratulating

ourselves that she was emerging from what looked to be a dangerous situation as she did not want to sleep so much and appeared to recognize everything and asked some questions about the baby. Our fond hopes, however, were due to be short lived, for at 11 P. M. when they were trying to give her a drink, she suddenly rolled her eyes to one side and her left hand twitched a little and she fell back unconscious. I was called at once and upon my arrival found that her eyes were rolled up; her face was drawn to one side; her left arm and leg were apparently paralyzed, and she was in deep coma. I immediately withdrew 250 cc. of blood from the median basilic vein as the pulse was full and bounding and very rapid, and not at all like it had been before. Within five hours she seemed better, in fact she seemed to begin to get better as soon as the blood was withdrawn, and within the next few hours her breathing became less stertorous and her face looked better. At my next visit on Monday morning more improvement was noticed and she was seen to move the arm and leg slightly. From this time on the improvement was gradual. The face soon cleared up and then the use of the arm and leg improved, although she complained for some time of tingling and numbness in her hands and feet. The face soon cleared, but there persisted for weeks the strabismus resulting from the hemorrhage. The systolic blood pressure continued at about 200 mm. of mercury for three weeks, and the pulse rate continued at 100-120 during the same time. After this the blood pressure came down gradually to a systolic reading of 145, and the pulse rate also gradually decreased. The temperature at all times was near the normal mark, and the extremely high readings that are sometimes recorded were not noticed. There persisted at the end of the dangerous symptoms an amnesic period covering several days of her illness. She could not understand why we were taking so many precautions with her that she had not had during her other lying-in periods, and it finally became necessary to explain to her that she had just begun to recover from a very serious illness, in order to get her to cooperate in the treatment.

There persisted together with the strabismus, a dizziness, that lasted for some time and caused the patient considerable discomfort. The mother and child are doing well at this time.

This case, while fairly typical of this type, does not occur sufficiently often to be seen frequently, and so I feel that a recital of it will be of interest.

The interesting features are that there was first, an aphasic period of short duration; second, the semi-comatose state without a convulsion; third, the sudden apoplectic seizure; fourth, the absence of albumin or casts and the amount of urine passed.

THE JUVENILE THYROID*

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In this paper it is my desire to emphasize the importance of dysfunction of the thyroid rather than hyperfunction. The latter is relatively rare as an entity in children, while hypofunction is exceedingly prevalent. It is this type of case in which malnutrition, both early and late, is one of the outstanding symptoms. In fact, I am inclined to the opinion that malnutrition *per se* is a misnomer and no longer deserves a separate heading in our text-books. Far better, in the absence of any constitutional cause, such as lues, would be the term "athyrosis." The inviting mystery of the endocrine system is daily attracting more and more investigation to what, in its infancy appears to be leading towards a definite goal.

Therapy along this line now appears to be the favorite means of solution and the delightful assurance of "doing no harm" has made courageous many an otherwise observer. A well-known pioneer investigator in endocrinology once said to me, "Do not take my book too seriously. Read it if you will, but go back home and let your own therapy be your guide."

The thyroid gland begins to develop very early in intra-uterine life, but it is not until after birth that any considerable amount of colloid material is formed within the follicles and iodine may be detected chemically in the gland. The iodine increases in amount up to the age of thirty and decreases after forty years. The weight of the gland normally is dependent upon the amount of stored colloid material.

Champy's experiments with tissue cultures of the thyroid are of interest with regard to the normal mode of absorption of the colloid. In his investigations he finds that it passes through the follicular cells of the epithelium into the neighboring lymph spaces. Since the resorption is nearly complete in twenty-four hours, he concludes that it normally takes place quite rapidly in the organism. In his opinion the contents of the follicles are almost completely renewed every twenty-four to thirty-six hours.

In 1893 it was noted that when patients suffering from myxedema were fed with thyroid

gland substance there was a rapid loss in body weight due to a diminution of substances of fat and water. The study of this effect led to a series of experiments on the influence of the administration of thyroid gland upon metabolism. The majority of observers recorded a distinct increase in the nitrogen of the urine, with a concomitant decrease in weight, indicating an increased protein metabolism.

Plummer (quoted by Kendall) has shown that one milligram of thyroxine in an adult weighing approximately one hundred and fifty pounds increases the metabolic rate two per cent. There can be no doubt that the thyroid furnishes a substance or substances which are of the greatest importance to the normal growth and metabolism of the body. One or more of these substances appears to be an iodized derivative of protein, probably an iodized amine.

The most striking of the activities displayed by the active principle or principles is to stimulate katabolism though there are indications of an anabolic principle also. Perhaps two separate active substances may be concerned in these two antagonistic influences as would seem to be the case from clinical observation. There is some evidence that the secretion of the active substances is under the control of the sympathetic nervous system. It would seem that iodine in certain organic combinations is valuable as a catalytic agent in aiding or hastening the fundamental metabolic activities of the body. The thyroid is an organ whose function is to utilize this fact for the needs of the economy.

Rösle states "all children in goiter regions, even those who do not have goiter from earliest youth, show an inhibition in growth and development." Engelbach points that in his observation cases of hypothyroidism are rarely diagnosed before the fifth year of life, whereas to get the best results it should be recognized during the first year. The four points which give evidence of the condition are:

1. Overweight at birth, which cannot be otherwise accounted for.
2. Late dentition.
3. Late walking.
4. Late talking.

When hypothyroid children go to school they are found to be mentally subnormal and by that time, in addition to the hypothyroidism, there is usually a disturbance of other glands.

*Read before the Section on Medicine, Illinois State Medical Society, May 7, 1924.

Little need here be said of hyperthyroidism as but eighteen cases under twelve years of age have been found in the literature of the last twenty years. This condition, when recognized, will, in most cases, respond to the usual treatment, namely, rest in bed, bromides or allonal, quinine hydrobromate and diet.

Among all the endocrine products no other has, up to the present time, been used with such brilliant results or found so wide a field of usefulness as have those made from the thyroid gland. While thyroid therapy produces its most remarkable results in myxedema and cretinism, that is in conditions clearly due to absence or deficiency of the thyroid function, it has also been employed in the treatment of a large number of diseases and conditions in some of which there is more or less reason to believe that hypofunction of the gland plays a casual role. In other conditions in which it is claimed that this therapy is of benefit, there is not sufficient evidence for the assumption of faulty thyroid function and the justification for its employment must be sought in assuming that it acts symptomatically.

In speaking of thyroid therapy and its suggested indications in this paper, only such cases as occur before the age of ten years are considered. There are a very considerable number of diseases and conditions in which the value of thyroid administration has been more or less definitely established but in which hypofunction of the gland has not been demonstrated (and in some of which not even assumed). Here the employment of the treatment rests largely upon an empiric basis, that is, upon the effects which have been obtained in clinical trial, for which, in certain instances, no thoroughly adequate explanation has yet been furnished, while, for the beneficial effects obtained in others of this group, a more or less sufficient explanation is furnished, by the known physiological effects of thyroid feeding.

1. *Rheumatism*, articular and muscular: The frequency with which patients with myxedema suffer from so-called rheumatism and the beneficial effects excited thereon by thyroid therapy, has suggested even a minor degree of hypothyroidism may play a casual role in certain cases of arthritis and that thyroid feeding would prove beneficial under these conditions. As in an overwhelmingly large proportion of cases of arthritis there is an element of infection and as there are

grounds for believing that the thyroid gland exerts at least some influence upon the process of immunity it is not illogical to assume that even a slight degree of hypothyroidism will render an individual abnormally susceptible to joint infection and that in such a case, thyroid by augmenting the formation of antibodies would assist in overcoming the infection. According to fairly numerous reports of Hertoghe, Rothschild and Leopold Levi, thyroid feeding has often proved strikingly beneficial in rheumatic patients, not otherwise suggesting hypothyroidism. Such observations by no means indicate that all cases of so-called rheumatism will be benefited by thyroid therapy as some enthusiasts would appear to believe, but rheumatic symptoms respond to it favorably often enough to justify its trial in conjunction with other measures of known value, such a removal of infectious foci. One or two grains daily will at times give noticeable relief.

2. *Epilepsy*: From time to time it has been thought by various observers that there was a more or less frequent relationship between epilepsy and dysfunction of the thyroid gland and that thyroid therapy would produce beneficial results in the treatment of this disease. It would be hard to define the status of thyroid feeding in epilepsy better than done by Dercum, who says, "In a given number of instances the physiological level of the patient may be distinctly raised by the administration from time to time of small doses of thyroid extract, say from one-eighth to one-fourth of a grain three times a day, seldom more. Naturally there can be no question of the propriety of and benefit obtainable by the administration of thyroid to epileptics, who are also hypothyroid, for it is a rule, to which there are few exceptions, that whatever improves the general health of these cases also exerts a favorable influence on the epileptic seizures.

3. *Enuresis*: Early in his studies of patients suffering from myxedema and milder forms of hypothyroidism, Hertoghe called attention to the frequent occurrence of enuresis in these cases and to its relief by thyroid therapy. A little later and quite independently, Williams was led to try it in cases with this complaint and reported twenty-five cures in twenty-six cases thus treated. The remarkable thing about the experience of Williams was that in most of his cases there were none of the usual signs of hypothyroidism. While from time to time Walbe and others have re-

ported cures or at least amelioration of this distressing symptom from administering thyroid and though it is frequently referred to in textbooks, the treatment does not appear to have been generally accepted. The dose should be small—one-half to two grains per day—as large doses seem to make the condition worse.

4. *Syphilis*: As long ago as 1893 reports were made of the successful employment of thyroid in the treatment of lues. Since then similarly favorable reports have been made from time to time by various authors. These communications appear to have attracted little attention and syphilographers generally have not been inclined to accept it as a useful agent in their treatment. Von Jauregg, however, as the result of his own clinical observations and because of certain theoretical considerations, is of the opinion that, in some cases at least, thyroid administration is distinctly more beneficial than that of iodides. He also believes that the ingestion of thyroid distinctly increases the tolerance for mercury and states that certain of his cases which have been unsuccessfully treated with mercury and iodides were very promptly and decidedly benefited when thyroid was substituted for iodide. He urges that in cases of lues which have shown themselves refractory to the usual mercury and iodide therapy, treatment with thyroid added be given a trial. While, according to our present views, iodides do not owe their value in the treatment of syphilis to their action on the thyroid there is at least one established fact which lends support to the view that thyroid feeding may be a useful adjuvant, at any rate occasionally, to other antisyphilitic treatment. That syphilis by no means rarely attacks the thyroid gland and that in such cases there may develop hypothyroidism with its various consequences, among which is a lessening of the power of resistance to infection is perhaps of especial moment in this connection. The views of Von Jauregg certainly appear worthy of remembering and this therapy seems entitled to a trial in recalcitrant cases of lues with apparent involvement of the thyroid.

It has been pointed out, according to G. Ennis Smith, that the diets that produce rapid growth tend to exhaust the fetal thyroid of its active secretion and that Hart and Steenbuck were able to produce hairless pigs experimentally by feeding a high protein diet. It is also well known thyroidectomy is more disastrous to carnivora

than to herbivora. The above evidence indicates that any increase in the protein metabolism requires a corresponding increase in the thyroid activity. If there is not an abundant supply of iodine the thyroid will eventually become exhausted, and with the low iodine concentration of the blood the thyroid will attempt to accommodate itself to that condition, and hyperplasia will take place. This was actually the condition found with the hairless pigs. The iodine content of the fetal thyroid was reduced to a mere trace, and the size of the gland was increased tenfold, and to a less degree the maternal thyroid was similarly affected.

The experiments of Hunt and Seidell, in which they were able to immunize against two to tenfold the lethal dose of toxic substances by feeding desiccated thyroid, tend to prove that detoxication may be one of the functions of the thyroid, possibly a very important function. During pregnancy the excessive protein metabolism tends to exhaust the fetal and maternal thyroids of their physiologically active secretions if the active constituents are not continually renewed by an abundant supply of iodine. In a more or less exhausted condition its function as a detoxicating agent would be reduced, and there would be a corresponding increase of toxic metabolites in the blood which would set up a condition of general toxemia such as may induce albuminuria. Bowen and Boothby have demonstrated that, in subthyroid conditions, albuminuria can be eliminated by thyroid medication. Thus, while albuminuria and the toxemia of pregnancy may be produced by other conditions, experimental evidence indicates that a lack of function of the thyroid may be a probable cause of albuminuria and toxemia during pregnancy which may be overcome by an abundant supply of iodine. When the pregnant woman develops albuminuria some obstetricians recommend eliminating protein as much as possible from the diet. It is generally recognized, however, that the growing child has a high protein requirement, hence a treatment that tends to produce a protein starvation of the fetus does not appear to be reasonable. It is contended that unless there are secondary complications, if the activity of the thyroid is maintained by an abundant supply of iodine, the metabolism of favorable proteins in reasonable amounts will proceed without distressing effects. A milk diet is at times recommended.

It has been found that a very severe form of fetal thyrosis has been produced when pregnant sows have been given large quantities of skim milk. While a milk diet may assist in the elimination of a general toxemia, yet it should be borne in mind that it will probably be very disastrous to the fetus unless it be supplemented with an adequate supply of iodine. It may be advisable to go a step further and say, "when *either* of the parents of the expected offspring are suffering from a disturbance of the thyroid, in order to prevent a fetal athyrosis *it is imperative* that the ordinary diet should be supplemented with a generous amount of iodine throughout the gestation period, and probably also when they are suffering from a parathyroid disturbance. To insure the normal function of the thyroid of the mother and thereby exert a favorable influence upon the fetus, the ordinary diet should be supplemented with one-half to one grain of iodine approximately daily during pregnancy and menstruation and for a period of seven days each month during puberty, especially during the first three months of the year when the iodine content of the thyroid is at its lowest. This is quite in harmony with the now established custom of feeding iodine to school children in the form of the so-called "Nu" salt in certain sections of Europe and the United States. The prevention of adolescent goiter is no doubt the primary object, but it is also hoped to produce other favorable results at the same time, more especially increased growth and development.

Right here I wish to briefly mention two cases of pregnancy which it occurs to me may fit in well with what has just been said. Both were luetic, came to me early in pregnancy, and were intensively treated, first with mercury and the last month with a combination of mercury and potassium iodide. Both went to term, physically well appearing, and both gave birth to exceptionally large, apparently healthy boys, each weighing ten and a half pounds. It is possible that the daily supply of iodine had much to do with the three pounds overweight of the fetus in each case.

As appreciative of the gratifying results of thyroid therapy, I wish to invite your attention to a series of *fifty-seven cases* covering a period of about a year and a half. The children ranged in ages from three months to nine years. In all cases an athyrosis was suspected but was not the

outstanding feature of the illness. The majority of the cases were feeders. Some were slowly recovering from an acute infection, and some were apparently not especially sick—just below the horizon for children of that age. As this is only a preliminary report, I have not as yet tabulated the results in detail, preferring to wait until a larger number of cases is available. For illustration I will cite two cases to make my effort somewhat clearer:

Case 32.—Clarence L., aged seven years, came to me in October, 1923, weighing 33 pounds 13 ounces. Should have weighed 49 pounds. A full term child, delivered under normal conditions. Breast fed 14 months. Other than a mild measles, a fractured right clavicle and several attacks of acute tonsillitis, the history is unimportant. The family history showed nothing unusual. He is an only child, had a poor appetite, was slightly constipated but slept well at night. There were periodical attacks two or three times a year of what seemed to be cases of acute intestinal indigestion. The child did not seem sick, went to school each day, played hard, but had a rather irritable disposition. The urine was negative. The blood showed no infection, a hemoglobin of 82 per cent., slight decrease in red cells and a negative Wassermann. Physical examination showed a dry, sallow skin, no rash, muscles soft and pliable, small cervical glands, red conjunctiva, eyeball lustreless and yellow. The hair was abundant and rather fine. Teeth discolored and small, tonsils pitted but not enlarged, tongue coated. The heart and lungs normal, the abdomen somewhat tympanitic, no masses and not tender. The liver could be felt; the spleen could not. No intestinal parasites were found. He was put upon a powder containing calomel, thyroid, pituitary and saccharated oxide of iron. This was continued daily for six months with an occasional short-period administration of cod liver oil. However, the oil was not well tolerated, and was discontinued when indicated. The normal gain for a boy of this age is 4 pounds per year. This child gained a little less than 7 pounds in six months, three and a half times the normal gain. He is still under treatment but not yet up to the normal weight for his age. It is very gratifying indeed to note the change in the patient's physical condition, his mental attitude and resistance. He has not had one sick spell this winter.

Case 21.—Errol N., aged 8 years, came to me in January, 1923, weighing 43 pounds 4 ounces. He should have weighed 54 pounds 12 ounces at this time. He was just 11 pounds 8 ounces underweight. A first child—an only child—born at full term by a normal delivery. Breast fed with table diet almost two years. No acute illness in the history other than repeated slight bowel attacks. A recent pertussis still showed in a slight cough. It was thought by his parents that he might have had a mild "Flu" at the same time. The family history in this case is uneventful.

Physical examination showed a child with a dry

sallow skin easily wrinkled. The hair was light and fine but plentiful. The eyes were sallow with little lustre and the lids were red. The teeth were yellow and small. Tonsils had been removed. Tongue dry and slightly coated. Cervical and axillary glands were present on both sides. Lungs showed some hoarseness but no rales. Heart negative except somewhat rapid. Abdomen sunken, no masses; liver felt and tender; spleen not felt. The urine was negative. The blood showed a white count of 10,500, hemoglobin 65 per cent., a small decrease in red cells and a negative Wassermann. The sputum showed no tubercle bacilli, a few minor bacteria and a marked number of influenza bacilli. A picture of the lungs showed the characteristic vine mingling of the post-influenza condition. The temperature ranged from 99 degree to 101 degree but a ten days rest under supportive treatment in the hospital erased that from the chart. The child improved in looks but went home with a poor appetite. Irritability was still a marked symptom, and he would cry with very slight provocation. He was put upon calomel, thyroid, pituitary and iron with a supposed starch digestant, and kept on that for a year.

It is a pleasure to report that at the end of one year and thirteen days his disposition was happy, his mind and eyes alert, he was obedient and his color and appetite good. He weighed just 60 pounds—a gain of 17 pounds instead of the normal gain of 4 or 4½. He is still below weight for his age, but has a promising outlook under continued treatment.

The long continued internal use of mercury, with none but apparently beneficial results harmonizes happily with Von Jauregg's opinion, namely, that thyroid feeding increases the tolerance for mercury. This has seemingly proved true in all my cases, as I use it continuously in suspected cases of athyrosis. That Hunt and Seidell were at least partially correct in their suggestion of a detoxicating or immunizing function on the part of the thyroid will bear consideration when one keeps in mind that neither of the above cases cited had even a common cold this winter, in comparison with frequent colds a year ago. That the thyroid at least exerts a forceful control over growth and development can not be denied in the light of these two and other cases of athyrosis; in just what manner other than food assimilation remains to be seen, but clinical experience must reveal some new angle in every series of cases.

First National Bank building.

DISCUSSION

Dr. Julius Hess, Chicago (opening the discussion): I did not expect to discuss this paper but I do want to make a plea for the infant who is born with insufficient thyroid because I believe there are a great many more of them than we recognize. I think that

every child that is born without thyroid is born before full term. There is a premature expulsion. Children born full term have some thyroid at least.

Besides the text-book signs that we recognize as hyperthyroidism in the more extreme types, such as myxedema of the skin, broad nose, the dry hair and pot belly are associated two signs which I think are invariably present at birth. First is what I am in the habit of calling the "bull frog" or guttural voice, a kind of croak. The first time you hear such a voice in a young infant look for hypothyroidism. That is undoubtedly due to a myxedema of the vocal cords.

The second point is a retarded growth and physical development. This can be demonstrated by x-ray. There is a retarded development of the long bones but more especially the carpal and tarsal bones are delayed in their development. Those two things I think are present in every case in which there is any degree of hypothyroidism.

Fortunately for these infants there is a tendency on the part of the thyroid to increase in amounts or at least in activity in most cases. This is in great part dependent upon the age at which thyroid feeding is started. It is, therefore, of the greatest importance that hypothyroidism be recognized soon after birth. I have seen a number of cases which could be taken off of the thyroid preparation by the eighth to the twelfth year of life.

PUBLIC HEALTH SERVICE*

W. F. Draper, M. D.

WASHINGTON, D. C.

It may perhaps be interesting and helpful to indicate the general trend of the times in regard to the introduction and spread of communicable diseases. I should like to have you think along these lines for the next year because I personally believe that they represent the goal toward which we all should work.

You are doubtless aware that the Federal Government has established two lines of defense against the introduction of disease from without and its spread from within. The first is that afforded by the maritime quarantine system whereby all persons seeking admission to the country are subjected to an examination to prevent them from bringing in the so-called quarantinable diseases, cholera, smallpox, plague, typhus fever, yellow fever and leprosy. Along with the examination of persons is also included the examination of vessels and their cargoes which might harbor rodents and insects capable of transmitting certain of these diseases.

The second activity is directed toward preven-

*Read before the Section on Public Health and Hygiene, Illinois State Medical Society, Springfield, May 7, 1924.

tion of the spread of disease from one state to another and is carried out under the provisions of the Interstate Quarantine Regulations.

Rather than that the Federal Government should be compelled to maintain a system of quarantine stations with expensive equipment and personnel for the sole purpose of keeping out the occasional case of quarantinable disease would it not be preferable for our cities and communities throughout the United States to maintain their sanitary and health conditions at such a standard that even though a quarantinable disease should be introduced there would be no menace. Nor would this result in additional expense over that which the community should normally have for adequate protection of the health of its citizens. Measures sufficient for the prevention of typhoid fever and other intestinal infections would protect against cholera. The prevention of mosquito breeding would protect against yellow fever. Thorough vaccination would protect against smallpox. Cleanliness and sanitation would protect against typhus fever, while properly constructed rat-proof buildings and the sanitary disposal of wastes would reduce the rat population and the menace of plague.

As our local communities develop efficient health organizations to care for their own health problems the necessity for national and interstate quarantine activities will be reduced accordingly. Does it not seem logical and reasonable that we should now devote our efforts to developing within our states and our local communities health machinery which can and will afford adequate protection against disease both from without and within and at the same time tend to the promotion of health? When this is brought about it would seem entirely reasonable and proper that the money which is now being expended by the Federal Government in maintaining its quarantine stations should be devoted to assisting in the maintenance and support of local wholetime health service.

The local communities should not be expected to defray the entire expense of measures to prevent the introduction of communicable diseases into the United States. Both State and National governments benefit by the work of local health departments and should contribute their proportionate share of the cost. In the meantime, however, something must be done to inter-

est local communities in making the start along right lines. If the medical profession and the state and federal health agencies all fail to take the initiative no progress will be made; the local communities themselves seldom realize what their conditions really are or what possibilities there are for improvement. Toward this end the United States Public Health Service is assisting State and local communities in the establishment of local whole time health service in so far as its limited resources permit. It is soon to assist in Illinois and I hope and feel assured that the wholehearted support and cooperation of the Illinois State Medical Society will be extended.

The functions of the U. S. Public Health Service in its cooperative county health work are: 1, to extend the financial support which the Government owes because of the service which local health organizations render to the country as a whole regarding the prevention of the introduction and spread of disease; 2, to see that the work is conducted in an efficient manner and that money is not wasted, and 3, to see that local health authorities are appointed on a basis of efficiency and that politics do not intervene to make the health department inefficient.

Local health departments should represent the local people and the local medical profession. I have always thought of the health department as the agent of the local medical profession. The health officer does those things for the health of the people which the practicing physician knows should be done and which he wants done. The health department as a whole should represent the desires and wishes of the local medical profession upon which it is dependent for success.

The details of the work of the health department vary according to local conditions and can be determined only after careful study and conference with the local medical profession. Certain lines of work which the local medical profession may be able to carry out in some communities may not be at all practicable in others, as, for example, the holding of tonsil and adenoid clinics. In one county with which I am familiar the tonsil and adenoid problem was very troublesome. Many children were suffering from these causes and there were no doctors in that county who were qualified to do tonsil and adenoid operations or who wanted to. The

health officer called on each physician, discussed the problem with him and asked him if it were possible to organize a clinic and get some specialist to come and do the operations; if he would be in favor of that plan and whom he would like to have come down from the city to do the operations, also the amount each child who belonged to his practice could and should properly pay. He also asked the doctor if he would care to give the anesthetic, and if so to make the charge he thought was proper.

The doctors agreed upon an eminent specialist in the city about twenty-five miles away; a two-day clinic was held, the children were brought to the clinics, the family physician accompanied his cases, and the cases were cleared up with credit to the medical profession.

There are often doctors in a county that are qualified to do operations of that kind themselves and in that case they should have the opportunity.

Whole time local health service can be so organized as to solve our public health problems. It should be conducted with the cooperation, the understanding, sympathy and support of the local medical profession. I can not conceive of how it can be successful otherwise, and I believe local whole time health service will be the medium through which our public health problems will eventually be solved.

DISCUSSION

DR. I. D. RAWLINGS, Director State Department of Public Health, Springfield: I was very much interested in this paper. I regret that Dr. Draper traveled all the way from Washington and could not be given more time. He brings up some new points in the control of communicable diseases.

It seems to me it would be quite feasible with the decreased immigration we are now having to perhaps throw down that phase of our National quarantine and use that large sum of money to advantage along the lines he mentioned within the states rather than outside the United States.

His paper emphasizes particularly one point that we have all been favoring, the majority of the medical profession at least, namely, decentralization of power. If the plan he outlined here were followed, there would be much less centralization either in Washington or the State's Health Department and more in your local community. Illinois has an unusual problem in that we have not as many defenses as are usually found in most states in health protection. For example, in many states, the local health officer is by law a physician; in Illinois, of 2700 health officers but 400 are physicians; the rest are all lay

health officers. We are largely dependent for protection of our health on lay health officers. They are elected; these elections come with regularity and they mean changes with each election and so far each year we have about one-third of the lay health officers to instruct in what is necessary in protecting their community because the old group is going out. I can see but one logical satisfactory way of protecting the health of the people and that is, in the large counties, through an efficient county health unit. The full time county health officer, and in the smaller counties a combination of counties, seems to me the logical plan to work out such protection as Dr. Draper has outlined as being needed in the various states. The county health unit is on the increase in many states, even in New York, operating heretofore through the district plan, they are also adopting the county unit plan. I noticed the other day that another New York county had adopted the county unit plan for health protection. We have one or two in Illinois. With so many lay health officers, it seems to me it is important that the larger counties have some medical men whose business it is (not in competition with the practitioner of medicine) to protect the public health.

It is as logical to have a man look after the health interests of the county as it is to have a state's attorney in each county to look after the legal business. It is important to my mind to have one man look after the health interests of the county, devoting all his time. I fail to see where with these frequent changes and so many lay health officers,—until we get through a full time health officer in the larger cities and counties—we will accomplish the public health things we want to do.

PAUL HANSEN (Chicago): I used to be in Public Health work and therefore I was struck with the term used by Dr. Rawlings, decentralized health work. I think a better term would be a somewhat paradoxical one, is centralized decentralized health work; centralized co-ordination and decentralized activity in authority.

DR. A. L. MANN (Elgin): I would like to ask Dr. Draper if he knows whether or not the Federal supervision of quarantine is breaking down, or is relaxing. I understand the Panama Canal Zone is loosening up on its restrictions, as for instance, the residences of the government employees of the entire canal from Cristobal on the Atlantic side to Panama on the Pacific side are not being given sanitary attention as in the past, screens are not being repaired, grass is not being cut, vegetation is again beginning to run riot, and if there is a place where eternal vigilance is the price of liberty, and incidentally safety, it is right there.

We know what happened in San Francisco in 1902 or 1903 when the bubonic plague appeared there, when the agencies of the Federal Government through the Army and Navy Medical Departments, the M. H. and P. H. S., besides the City Health Department of the City of San Francisco, demonstrated beyond the shadow of a doubt the existence of the bubonic plague there. The Press, represented by *The Call*,

The Bulletin, *The Chronicle* and *The Examiner*, all came out giving the lie to the findings of these unbiased agencies, as a result of which bubonic plague became entrenched in San Francisco County and adjacent territory and it is there today. You can't get it out. Only one paper, *The Star*, published weekly, openly admitted the fact, urging the public to take due notice thereof and co-operate with the authorities in their endeavor to destroy the epidemic in its incipency, but which they did not do until the earthquake came along and taught them a tardy lesson.

You talk theoretically about what should be done. Are we ever going to, in the face of political conditions that exist in this country today, come anywhere near realizing your ideal? In the State of Illinois there is one thing that is not yet fully recognized throughout the State, and that is the necessity of complying with the contemplated requirements of the State Statutes, and that is the operation of a Board of Health in every health jurisdiction in the State through which the sanitary and hygienic laws of the State of Illinois can be legally and efficiently administered. The Supreme Court has decreed that a City Council can not delegate to a city physician or to a health officer the power to do what the State Board of Health demands; that action must come through a duly constituted Board of Health vested with full power to act.

Now we have had our experiences, and the idea of Mr. Hansen's centralized decentralization of power is proper and ought to be carried out if it can be done. How are you going to do it?

PUBLIC HEALTH IN RELATION TO THE COUNTY BOARD OF SUPERVISORS*

J. B. LISTON

CARLINVILLE, ILL.

The County Board of Supervisors is a representative body of the rural districts. Supervisors, as a rule, are quite influential in the respective townships from which they are elected, and the people of such townships will generally give much weight to any suggestions a supervisor has to offer. People living on farms in small communities are more watchful over the expenditure of money by public officials than perhaps any other class of people. This is so because they work hard for the money they earn and have a just right to feel that the taxes they pay should be used for those things only that are needed and would be a direct saving to the tax payers. A county supervisor, knowing that his actions are being closely watched by the people of his township, hesitates about voting for the expenditure of

county tax money for a given cause, unless it is very clear to him that there is a real necessity for the expenditure of such money. Nearly all the counties of the state have to figure very closely to obtain sufficient money to meet all the demands imposed upon them by the state and federal government, and each succeeding year these burdens are increasing. Very often new laws and regulations are passed requiring a county board to spend additional money with no provisions for an extra tax, or, in other words, the counties are being constantly forced to do more with the same amount of tax money.

In taking up public health work with a county board of supervisors the very first thing to be considered is the financial end, and usually this is the last thing thought of by the promoters of public health work. Constantly everywhere we are being told that the present public health work is a saving to the tax payer, and yet when you come down to the real facts in the case and go to the records of your county and state and look into the expenditures in those places wherein returns should be noticeable from the amount of money spent for public health purposes, in only a few places do we find a decrease in these expenditures, and in almost every case we have annually an added expenditure. Our institutions for the feeble-minded, the insane, the delinquent and the criminal are constantly on the increase. Any board of supervisors knows that this is true as they are called upon annually to pay the bills.

A public health program that would strike directly at the control of syphilis, gonorrhea, and tuberculosis, three of the diseases that require the expenditure of more money by the tax payers than all other diseases, would meet with the active cooperation of the rural districts and most boards of supervisors. Too much money and time is spent on the lesser communicable diseases. The money expended for the quarantine and control of these lesser communicable diseases is of doubtful value. People during a lifetime will generally contract these lesser diseases regardless of all your rules and regulations. A county should not be put to the expense of quarantining smallpox. It costs money to keep people who are in quarantine and since vaccination is both reliable and safe, it seems wrong to use the tax payer's money in this way. It seems wrong to the county board of supervisors that the imbecile, the incorrigible the habitual criminal, the incurable insane, are

*Read before Section on Public Health and Hygiene, Illinois State Medical Society, Springfield, May 7, 1924.

permitted to go on and reproduce their kind, to be turned back into our state institutions at the tax payers' expense. In pioneer days the weak and the incurable died quickly and passed to their reward; the strong and the sturdy were left to reproduce. At the present time millions upon millions of dollars are being spent for a small extension of life to the weak and to the incurable and they are allowed to reproduce. No one would deny to the weak and the incurable that they should be cared for in an ordinary comfortable way until they die; they should not be allowed to reproduce and it is in doubt as to whether the time and money spent in helping to prolong their life just a little is in kindness to that class of individual.

If we could lift our public health departments from the influence of the so-called American politician and if the money appropriated for public health purposes could be spent one hundred per cent for that purpose and if we could get men at the head of our public health departments who would realize that the tax payer has the right to have done those definite things that will lessen his burdens, then there would be no trouble in obtaining cooperation for counties and the rural districts.

At the present time it would seem that the small community and the county board of supervisors must look in some other direction for relief than to our state and federal departments of public health. It would seem better that our state and federal law makers tie the hands of our state and federal public health departments completely, than allow the hard earned money of our rural districts to be paid in taxes and appropriated to purposes to help in the name of humanity, than allow the politician to dictate to our departments of public health, make rulings and regulations and create extra positions only in the interest of furthering individual political aspirations. The solution for a county or township in rural districts in matters of public health seems to be in the hands of the American physician. No other class of people, no profession, has ever made the sacrifice for humanity as have our physicians. A public health course in our medical schools as a requirement would better qualify our physicians and place them in position to go to their clientele wherever that might be and intelligently interpret the laws of nature in regard to the health of the community. If all physicians

could realize the necessity of public health work and as a whole would qualify themselves for such work, then each rural district could become a health center for itself and could solve its own health problems. The American physician has stood for ages for the up-holding and up-building of mankind. But at no time in history have physicians been face to face with greater problems than they face today, chief among which is the keeping of their profession free of the political grafter, and continuing as our forefathers in the uplifting, improving and preservation of the American people.

Physicians at the head of our public health departments are as a rule honest men, striving to do the best they can, the highest type of the medical profession. Anyone who has had dealings with the present Secretary of the Illinois State Board of Health, will testify to his absolute honesty, efficiency, and absolutely square dealings as a public official. I repeat, without fear of successful contradiction, that politics is the curse of our national life from which if there is not some relief, some radical change, it will not be long until at our present ratio of increase, those inside and dependent, will outnumber those on the outside.

It has been said that education is the relief from all of our troubles. Today Illinois has one of the most extensive and expensive educational institutions in the world—in Macoupin County alone, with a population of something over fifty thousand people, eight out of every fourteen dollars paid in taxes or a total of over \$800,000 is spent in education—every child should have a good solid eight grade education. Let those who wish a higher education strive for it and let us not undertake to force higher education upon the youth of our land, trying to develop their mind to the detriment of their physical body. Physical labor is one of the best things to develop strong men and women, and can it not be said that our schools today have a tendency to create in a child's mind that there is an easier way to live than by work. In Macoupin County today we have Blackburn College, a school that combines manual labor with education, giving the poor boy and the poor girl seeking a higher education, a chance to obtain it, not at the tax payers' expense, but by labor with their own hands.

In Macoupin County four years ago the board of supervisors adopted a plan of its own. It

increased the salary of the county physician to \$2400 annually for part time services and put him in charge of a public health committee of three members of the Board of Supervisors appointed by the chairman. The duties of the county physician were to assist the supervisors of the respective townships in the capacity of a health officer, and to have charge and supervision of all medical, hospital, sanitarium and surgical cases in which the county was called upon to pay. Aside from this the county physician was required to treat all indigent venereal cases and to annually examine all the children of the rural schools. The beginning of this work was a mere experiment. The year preceding the adoption of this plan Macoupin County had paid in doctor and hospital bills something over nine thousand dollars for ordinary medical and surgical cases. Of the fourteen thousand school children in the County less than three thousand at this time were vaccinated. In the schools were children suffering of tuberculosis; children were found who had been in one grade from three to seven years; crippled children were found that needed attention; children were found in homes where fathers and mothers were suffering from active cases of tuberculosis, in many cases sleeping in the same bed and in the same rooms with such parents. From sixty to one hundred cases of smallpox had been reported the previous year in Macoupin County and a bill for four hundred dollars for food, care and medical attention was presented for one family consisting of eight people suffering from smallpox, for the county to pay.

The first thing done was to evolve a business method of handling the medical and surgical cases in which the county was asked to pay. A physician who expected the county to pay his bill was required after his first visit to notify the supervisor of the case and the latter if he could not handle the case called in the county physician to investigate. If it was a hospital or surgical case the county physician took entire charge of it; if it was a medical case the county made proper provision with a local physician for its care and treatment. The first year under this plan county medical bills dropped from something over nine thousand dollars to something over twenty-one hundred dollars; the second year these bills were less than fifteen hundred dollars and the third year less than one thousand dol-

lars. Of the fourteen thousand children in the county at the end of two years more than twelve thousand had been vaccinated; some seven thousand of these were vaccinated free by the county. It was necessary to take the crippled children to Barnes Hospital at St. Louis for braces, since it was found that the braces in the clinic under the supervision of the Washington University could be had at about one-fifth the cost we would have to pay in our Illinois clinic for crippled children. The feeble-minded children were taken out of the schools and sent either to Lincoln or to their respective homes to work. By special arrangement it was voted by the board of supervisors to establish a venereal clinic at Carlinville for the treatment of indigent venereal patients. This clinic was assisted by the State in way of finances at first but soon the entire expense was borne by the county. An active campaign was made in every section of the county against these diseases. The problem of handling of the tuberculosis cases seems to be one of two most difficult problems in Macoupin County. The expense and maintenance of a county Tuberculosis Sanitarium seems questionable. At present a plan is being devised to erect small cottages on the County Farm land. A State Sanitarium for Tuberculosis seems to be the one thing needed by counties. Macoupin County at the present time is taking care of some forty dependent children at a cost to the tax payers of 75c per day for each child. Fourteen of these children have one parent dead and the other in the State Hospital for the incurable insane. Six of the children have feeble-minded mothers. In the past two years there have been no cases of smallpox reported in the county.

At the end of the second year a report was made by the committee of the work accomplished in Macoupin County. By unanimous vote of the Board it was voted to continue the work for three years. Work has been accomplished that the tax payers need take nobody's word for, but may go to the records of the Board of Supervisors.

At the present time Macoupin County is more than \$150,000 in debt. This indebtedness has not been brought about by any serious mismanagement of the County Board of Supervisors. The actual requirements of the county each year is from 10 to 20 per cent. more than is obtained in taxes to pay with and with new laws and

regulations and requirements the burdens of the county is becoming worse.

It would seem that a tax payer has a right and that public officials should recognize this fact, and in making laws and rules and regulations that it would seem better to recognize the good of the whole people rather than try to promote the political aspirations of individuals.

Public Health work can be made a direct saving to the tax payer but before this can be done it must be lifted from politics and public health officials must stop spending so much time and money on the little things and strike hard and persistently at the big problems, the ones that it takes real men to face and to fight.

DISCUSSION

Dr. I. D. RAWLINGS, State Department of Health, Springfield: I cannot quite agree with that sentiment on vaccination. Knowing the situation in adjoining counties, if only Macoupin County would suffer by letting smallpox occurring in that county run riot it would be all right. Fortunately they have all the children pretty well vaccinated in that county, thanks to the energy and efficiency of Dr. Liston. He has been on the job and has co-operated with this Department, and the State Department has tried to co-operate with him in his work. But smallpox in that county would extend to adjoining counties where we know the population are not nearly so well vaccinated.

The health of one community often depends upon the health of another community. In Kansas City, for example, two or three years ago because smallpox was not vigorously handled, we in Illinois had a number of hemorrhagic cases of malignant smallpox imported directly from Kansas City and I believe until we have a much larger percentage of Illinois population vaccinated against smallpox we dare not ignore quarantine for smallpox in Macoupin County or any other county in Illinois.

WHERE LAW AND MEDICINE MEET*

JESSE R. BROWN, Esq.

ALTON, ILL.

The question, "Where Law and Medicine Meet," is both a scientific and a legal question. It is, therefore, necessary at the outset to define three terms, the definitions of which must necessarily be our guide in analyzing and discussing this question. These terms are law, medicine and a science. Each of these terms has a broad and general definition and a more particular definition, limiting it to some definite

department of knowledge comprehended within the definition.

Blackstone, the greatest commentator on law of modern times, says, "Law in its most general and comprehensive sense signifies a rule of action and is applied indiscriminately to all kinds of action, whether animate or inanimate, rational or irrational." This comprehensive definition includes natural law, spiritual law, moral law and human law. I desire in this paper to use the term law to apply only to human law, or municipal law, which is that system of laws made by men to regulate their conduct one with another and toward the State and is defined by Blackstone as follows:

"Municipal law, thus understood, is properly defined to be a rule of civil conduct prescribed by the supreme power in a State, commanding what his right and prohibiting what is wrong."

The term "medicine" as defined by Webster also has a general and a special meaning. In its specific sense it does not include the science of surgery; but for the purpose of this paper, I wish to include surgery, and, so will accept the general definition given by Webster as, "The science and art dealing with the prevention, cure or alleviation of disease."

Both law and medicine are spoken of as a science. A science has been defined to be "any department of knowledge in which the results of investigation have been worked out and systematized; an exact and systematic statement of knowledge concerning some subject or group of subjects; especially a system of ascertained facts and principles covering and attempting to give adequate expression to a great natural group or division of knowledge."

Under this definition are grouped what are commonly known as the sciences, among them medicine. This definition is also broad enough to include the facts and principles of law as classified and arranged, as a science. However, a further examination of the sciences reveals two main classes known as exact sciences and sciences not exact. The graduation, however, between exact sciences and sciences not exact is gradual. It is common knowledge, particularly among doctors and lawyers, that the science of medicine is a much more exact science than the science of law.

Since all exact knowledge gained by the human race in its advancement in learning is scientific

*Read before Madison County Medical Society, at Edwardsville, Oct. 3, 1924.

in the broadest sense, it necessarily follows, that the division of scientific knowledge into departments such as the mathematical sciences, physical sciences and biological sciences must meet and in many instances overlap in their classifications. It can readily be seen that the points of contact or meeting points of two exact sciences will be definite and exact, as for illustration, the application of the laws of the mathematical formulas of algebra that are applied to the demonstration of certain geometrical problems is definite and fixed and positively known to the mathematician. The converse of this proposition is apparent to all; namely, that the points of contact or meeting place of two sciences, either of which is not exact, must necessarily be indefinite, and inexact and will change from time to time as the two sciences in question are reduced to more exact sciences.

In dealing with this subject I have considered the growth of law and medicine of recent time only and in so doing I have found that medicine has advanced much more rapidly in its discoveries and in the application of those discoveries to the peculiar needs of the human race, than has law.

Another proposition which I wish to lay down and to which I think all of you will agree, is, that as any science or department of knowledge becomes exact and definite it becomes more rigid and less yielding to outside influences, whereas the more inexact a science is the more plastic and yielding it is to new discoveries and outside influences. This being true, it can be stated both from a scientific as well as a historical standpoint, that the science of medicine has in our modern jurisprudence exerted a powerful influence for good over law and legal proceedings.

Under our system of laws, we have what is known as the common law, which originally was based on the court decisions of England and was brought from England to this country and adopted by us as our common law. This common law has been added to by the decision of our courts of last resort and each case becomes a precedent, or rule for guidance, to lawyers and courts in cases of a similar nature following such decision of a court of last resort. In addition to this common law we have statutory law or law made by our Legislature. If we start with the early decisions of our State and proceed down the line through the volumes to

our latest reports we find that originally law and medicine did not seem to have any meeting point, whatever. The first decisions we find where they seem to have met are in cases of malpractice where the physician did or failed to do something which was in violation of law or of his relation to his patient. This line of cases, however, has almost entirely disappeared from our modern court reports, which reveals to the thinking person the great truth that the science of medicine has advanced to that high state of perfection in both the science and art of treating the ills of humanity that there is scarcely ever an error in the diagnosis or treatment that the law will charge as negligent or unskillful. In this regard it may also be said that our law has advanced to that enlightened degree where it has recognized the valuable services to humanity rendered by the medical profession to such an extent that it has thrown more protection around the modern physician to protect him from malicious attacks of those who might seek through malice, ill will, or disappointment to satisfy and gratify those feelings by prosecuting a physician or surgeon under the claim of malpractice. At any rate, it may be said to the credit of our doctors and lawyers that malpractice suits are almost a thing of the past. While malpractice cases have been disappearing from our courts another line of cases, in which physicians have played a prominent part have increased in astonishingly large numbers. Our courts in an early day, knew little, if anything, about expert testimony. But in our modern industrial system the expert testimony of the physician and surgeon has become one of the most important subjects of modern jurisprudence. The old way of trying a law suit for an injury between a master and his servant was to bring a suit for damages, call witnesses who saw the accident and then put the injured person on the stand to describe his injuries, which sometimes assumed the stage of a drama, and then let the jury guess how badly the plaintiff was injured and how much the master should pay. Often the merits of the case were lost sight of under the guise of some technical rule of evidence and the servant, although badly injured, was not permitted to recover damages on account of some rule of law of contributory negligence, negligence of the fellow servant or the doctrine of assumed risk and the result was that a cripple

for life, was thrown on society without any compensation from the one whose business caused the injury. Gradually, the doctors began to take hold of this subject and to appear in court as expert witnesses. Many great physicians of note began the study of occupational diseases and of accidental injuries. The result of the efforts of these pioneers brought about a reform in our laws both as to the rules of evidence as laid down in our common law courts and later, by statutory enactments which changes the whole field of industrial and occupational accidents and diseases. So, today, when a man is injured in a factory, mine or shop, there is a company physician at hand who makes the first examination and renders first aid. The injured person is then permitted to choose another physician if he so desires. He is given the best of care and his compensation for injury is determined in a more exact and scientific manner. If his employer does not voluntarily pay the compensation as recommended by the physician, the injured party may then employ his lawyer and seek redress at the hands of a Board of Arbitrators whose business it is to settle industrial accident cases. Any one who has attended a hearing of our Board of Arbitrators has witnessed the fact that in settling and adjusting claims for compensation for accidental injuries, the physician plays a much more important part therein than the lawyer. In fact, the lawyers have come to believe that in such cases the first, last and only thing to do is to get the report of the doctor and his judgment as a basis for settlement and advise his client to settle on that basis. And here, I might say, as a result of my own experience in such cases, and the opinion I have gained from other lawyers with whom I have discussed this question, that the medical profession may be congratulated upon its reputation for integrity and uprightness, when it is considered that in many cases lawyers have advised their client to settle their claims on the testimony of a physician, who is employed and paid by the company or employer that caused the injury.

There is another field where law and medicine meet in the question of dealing with criminal cases. This field, however, is yet too new for me to discuss with profit to you. In fact, I am not able to say whether the medical profession considers that the modern alienist or psychiatrist belongs to the medical profession. I can

only say that if psychology and psychiatry are branches of medicine that they apparently deal with some of the more uncertain diseases and peculiarities of man and, consequently, have not reached a stage of relative exactness, but are still in the theoretical or speculative stages. However, judging from the importance that medicine has had in its contact with law in the development and solution of many of our industrial accident problems, it may be safely said that this new field of investigation by men of the medical profession will result in the near future in a better, more just and more efficient handling of our criminals than has been the case in the past. That the meeting points of these two great sciences so essential to the health, welfare, peace and good order of society cannot be over emphasized and that when the medical profession and legal profession fully realize their proper relationship to each other much more benefit may come therefrom.

I have illustrated only a few of the instances where law and medicine meet. Other cases might be pointed out to illustrate the affiliation of the same principles; but a full discussion of these cases would unduly lengthen my talk. It is a fertile and interesting field for study and full of promise for good.

A BRONCHITIS OF UNUSUAL TYPE*

W. E. SHASTID A. M., M. D.

PITTSFIELD, ILLINOIS

Mrs. Y., aged 57 years, the mother of seven children, came into my office one day to seek relief from a distressing cough, which, she said, she had had for nearly four months. Two physicians had prescribed cough medicine for her on a number of different occasions, and she had also taken other medicine, but none appeared to give her more than temporary relief.

She had never been sick in bed during her whole life, except when her children were born. Family history negative as far as tuberculosis or any pulmonary or bronchial malady was concerned. While rather a large woman and of stout and short figure, yet she showed a tired and worn out appearance. She said she worked about the house most of the day and milked several cows morning and evening. The greatest difficulty she

*Read before Section on Medicine, Illinois State Medical Society, Springfield, Ill., May 7, 1924.

had was, that she could sleep but little at night, on account of the frequent paroxysms of coughing. She complained of little otherwise except she felt weak and at times nervous and tired, which was of course obvious. Her appetite was poor but variable. Sometimes she could eat a hearty meal, but usually had little, if any, desire for food. Objectively, her lungs seemed to be sound and clear, but the bronchial tubes were so filled with mucous and rales that it was difficult to detect whether there was any solidification of the lungs. Her temperature was about 100 and pulse about 90, ears, nose, and throat negative.

Percussion on the thorax, almost at any point, elicited a violent fit of coughing. Urine negative, bowels, she reported, needed the aid of laxatives at times.

I prescribed laxatives, soothing expectorants, and an hypnotic to get her more sleep at night, and directed her to come in every few days to see if I could determine just what the causative factor was, that had produced a cough of four-months' standing. She returned in four or five days saying that she was about the same except that she slept about twice as much at night as she did formerly. Physical findings about the same, except fever ran higher, about 100½ in the evening. A number of subsequent visits were very much like this, except the fever varied, at one time having a subnormal temperature. I still could find no deviation from normal that adequately explained the cough. Sometimes, the cough, she reported was very much better and was very much encouraged at her condition, but the fever hung on and general prostration become more and more marked. I had suspected tuberculosis in the early stages when she had first come to me, and now I began to seek confirmation of my earlier suspicions, because I could find no other adequate explanation. After having her under my care for nearly two months, I was out of town one day and on my return the next day, had a call to go and see her. She was now in bed and extremely weak. The husband reported when I reached the residence that she had had the day before a violent fit of coughing, had coughed up two or three tablespoonsful of blood, which had almost choked her, and as she had spat in the vessel by the bedside, had heard an audible "click." This was so audible that other members of the household had also noted it.

This is the broncholith which she spat up and I will now pass it around as I have never seen a larger one than this. It measures 20 millimeters in length and 10 millimeters in its greatest width. It came quite near choking her as it passed between the vocal cords. At once, her cough of several months' standing began to improve and was practically gone in a week. There was no other bronchial hemorrhage, and in the course of two or three weeks, she was performing some of her household work. I have sketched in this short paper the salient features of this case in order to have a full discussion of broncholiths and of bronchitis: it is so evident that there are many and various causes of this latter disease and some that present unusual difficulties in their diagnosis. It is apparent that the Roentgen ray would have solved the question as far as diagnosis is concerned, but yet the treatment perhaps, might not have been much different from what it was.

DISCUSSION

DR. HERMON H. COLE, Springfield, opening the discussion, said:

The doctor's case is, I think, one of an extremely interesting condition. It is interesting to me because not more than a month ago I had one almost identical. A young man who was chief of police in one of the downstate towns came in with a history of having coughed up a small stone, followed by rather severe pulmonary hemorrhage. That was about seven years ago.

Then about six weeks ago, two weeks before I saw him, he had another attack and coughed up another stone. It was not quite as thick as this stone. The peculiar thing about that case was at the time he coughed it he had a second pulmonary hemorrhage of three or four ounces. An examination of the sputum in the office showed a positive sputum at the time I saw him first. That cleared up. He has had no symptoms whatever since that time. The stone was a jagged sort of an affair, and I rather think what happened is that he had some sort of acute infection on top of the old pulmonary hilus tuberculosis. It was in the right lung. The broncholith was about one-half centimeter long. Right near the junction of the lobes is the location from which I think the stone came.

DR. W. E. SHASTID, Pittsfield, closing the discussion, said: I am somewhat disappointed in not having a fuller discussion in what, I take it, is a very interesting and unusual class of cases. I am glad to hear Dr. Cole mention his case where the broncholith was nearly as large as this. I think this is the largest I ever saw. I am disposed to think in many cases broncholiths are much more common than we have been led to think. I think there are

many that do not reach very large size and are expectorated with the mucous and the patient knows nothing about it. But, of course, when they get to any considerable size and begin to block up some of the larger bronchial tubes, you begin to get your pathological symptoms.

In this case I had no history. The woman had never been sick before in her life, except she had this cough for three months. I had no reason to suspect anything of this kind and it was impossible from the physical findings to deduce that, and I think the only thing that would have done it, would have been the x-ray. I report this case, more especially from the standpoint that in those doubtful bronchitis cases, and various pulmonary affections, it is best to have the Roentgen ray test made, so you can exclude the possibility of broncholiths being present.

PRESERVING THE SPHINCTER IN THE TREATMENT OF FISTULA IN ANO*

CHARLES J. DRUECK, M. D.,
CHICAGO.

Since the days of Brodie, Pott and Syme there have been many changes in the surgical dictum governing the treatment of rectal fistula; each and all trying to answer the query as to why rectal fistula refuse to heal and stay healed.

A review of the literature on this subject leaves one with the feeling that their surgical treatment, often regarded as essentially minor surgery, frequently fails to obtain satisfactory results and that tedious convalescence, recurrence of the fistula, a constant stiffness or uneasiness about the perineum or more or less sphincteric incontinence finds the patient no better or worse than he was before. With a view to obviating these calamities, and to cure the fistula within a reasonably short period of time and also to retain a nearly normal rectum we have developed the technic we described below.

One of the reasons advanced for the failure of these tracts to heal was the mobility of the sphincters. Perineal wounds heal without being artificially kept at rest and it does not seem rational that the normal activity of the sphincters can affect tissues several inches distant. Division of the sphincter was once an important part of every operation for fistula and is still much used and although results have been obtained either with or in spite of this procedure an impairment of the strength of the anal muscle with a variable

degree of incontinence has often occurred. Also the granulating wound is slow to heal and requires frequent and perhaps painful dressings.

Inadequate drainage is sometimes the crux about which discussions center, because the fistula was likened to a contracted abscess cavity. Examination of a fistula usually shows that there is little retained secretion. Ordinarily this finds adequate drainage at the external or internal orifices and when marked retention of the secretions occurs it usually indicates an acute exacerbation of the infectious process.

Believing that there is no reason why fistulous tracts in the perianal and perirectal tissues should heal in any way differently than in similar tissues in other parts of the body provided that the source of the infection is eliminated we now base our technic upon two principles. First, the separation of the fistulous tract or tracts from communication with the bowel, and secondly, the adequate closure of that communication with the removal of all the diseased tissues in the rectum. These measures having been employed, there is no occasion for an extended and complicated dissection and removal of all the ramifications of the fistula, for with adequate drainage externally upon the skin they will tend to heal.

Only a comparatively few fistulae originate outside of the bowel, the majority begin with necrosis of the rectal mucosa, such as an infected hemorrhoid, an ulcerated crypt or a torn papilla. From one of these situations a small infected thrombus is carried through the lymphatics to the non-resistant perirectal fat and soon a perirectal abscess presents and opens either externally or internally or in both directions.

If the abscess drains freely externally the internal opening may be scarcely more than microscopical but the examining probe is usually found to pass into the base of an ulcer and it is this opening which determines the chronicity of the process. Sometimes a reasonably sized crater like ulcer may be found or the internal orifice being but a superficial abrasion lodged in a fold of the rectal rugae may not be visible although it will admit the infecting microorganisms. I have several times been interested in how easy it is to demonstrate the internal orifice of the excised fistula threaded on a probe when it was impossible to pass the probe into the rectum while the fistula was in situ. As

*Read before the Section on Surgery, Illinois State Medical Society, Springfield, May 7, 1924.

long as this ulcer disseminates infection we are destined to have a continuation of the fistula.

From what we have said it is evident that however valuable the classification of fistulae into complete and incomplete may be for descriptive purposes it is of no particular importance for therapy dependent as it often is upon our ability to demonstrate a communication with the bowel. Such communication exists in a great majority of cases even though in many instances it may be microscopical rather than macroscopical.

The direct fistula with but one external and one internal opening is the easiest to relieve. The superficial sinus where the sphincter is not involved is incised thus dividing the overlying skin and converting the tract into an open wound. Under these conditions the direction of the incision is of little importance except that we aim by clean direct incision to produce as little scar as possible.

The internal opening with its ulcerated and scarred mucosa must always be searched for and when found picked up with tissue forceps while a crescentic incision above and around it frees the orifice. With a few sharp strokes of the scalpel the tissues are divided, the tract is dissected free down to the muscular coat and lifted out of the wound.

During this dissection one or more hemorrhoidal veins may be severed, but they will be controlled by mattress sutures placed transversely, thus closing the upper angle of the wound and also raising the cut edges above the level of the adjoining anal mucosa.

In the deeper sinus which passes behind or through the external sphincter the external orifice is dissected free with an encircling incision and the tract followed down to the sphincter muscle. With a little traction upon the freed portion of the fistula its course between the fibers of the sphincter muscle may be defined. Leaving the external wound temporarily and working from within the bowel the internal opening is liberated as has been detailed above until the sphincter muscle is brought into view. The whole fistula has now been excised and is withdrawn *in toto*.

The mucosa is now undercut laterally and upwards enough to free a flap which easily slides down over the sphincter muscle and is attached to the mucosa below.

No sutures are used in the sphincter muscle and no sutures are buried. The external wound is left open and allowed to granulate.

It sometimes happens that the infectious process originates low down in the hemorrhoidal area, extends upward around the rectum and perforates into the bowel two or three inches above the anal margin. Examination of such a case sometime after development of the fistula may lead one to suspect a high origin for the fistula when in reality it is low down, and possibly concealed in a benign appearing hemorrhoid.

If the internal opening is located above the sphincter the sinus will be a submucous tract unless the opening has been artificially made. A study of the anatomy of these structures shows that the muscles are so arranged that they protect the bowel from such an opening except that it be from a submucous tract. When the abscess is in the ischiorectal space and it opens into the bowel it follows the levator ani muscle down to between the sphincters where it finds a weakened place into the anus.

Many fistulae have a decided tendency to ramify in the loose fat and tissues about the rectum and buttock and it is these manifold and intricate ramifications which contribute so much to the difficulty of satisfactory surgical treatment.

In these sinuses the same plan I have outlined above is made to include the technic of Elting. Instead of an extended and complicated dissection of all ramifications of the fistula an excision of the whole riddled mucosa is sometimes preferable. This operation may be compared to an exaggerated Whitehead hemorrhoidal operation, whereby a cuff of the rectal mucosa is dissected free and pulled down far enough that amputation may be performed above the fistulous opening.

An incision encircles the anal opening at the mucocutaneous junction. A pair of blunt pointed dissecting scissors curved on the flat is now passed into the incision and by blunt dissection the mucous membrane is divided at its junction with the skin around the entire circumference of the bowel, every irregularity of the skin being carefully followed. The mucous membrane thus separated from the skin is held by means of four forceps.

The external sphincter and the lower edge of the internal sphincter are now exposed and carefully pushed upward and away from all possibility of injury. The dissection of the mucous mem-

brane is continued upward until well above the level of the internal opening in the diseased mucosa, or to the attachment of the levator ani muscle if no internal opening can be determined, care being taken to keep as near the mucosa as possible. In this way complete separation of the fistulous tracts from all communication with the bowel is accomplished. The dissection must be carried sufficiently high to mobilize enough healthy tissue about the diseased area that all the affected tissues about the internal opening may be brought outside the anus and removed by amputation, thus leaving a normal rectal stump which may be sutured flush with the skin without tension.

The mucosa above the diseased level is now divided transversely in successive stages and the free margin of the severed mucous membrane above is attached, as soon as divided, to the free margin of the skin by a suitable number of mattress silk sutures. These are placed in such a manner as to obliterate all dead space.

If a fistula exists for a considerable period of time traversing adjacent to or through the substance of the sphincter, the fibers of this muscle will be involved in the scar tissue. The sinuses and their accompanying lymphatics produce an infiltrative edema which is later changed into a fibrosis of the submucous areolar tissue and also of the soft perirectal tissues. The more or less extensive infection, associated as it is with necrosis, causes destruction of a part, and sometimes a considerable part, of the sphincter muscles.

In such a case, no matter how skillfully injury to the sphincters may be avoided, more or less marked incontinence of feces may follow, which the patient is inclined to attribute to the operation. Occasionally this extensive perirectal inflammation may subsequently, after a fistula is cured, cause more or less cicatricial contraction about the anus or lower rectum, with some degree of stenosis or stricture. This condition, too, is not always attributable to the operative procedure employed, but such subsequent adhesion is to be anticipated and overcome by massage. There is considerable variability of the arrangement of the fibers of the sphincter muscle in the perineum and it is important not to destroy the muscular frame work that goes to make up the contour of the parts.

There is none who will question the desirability

of obtaining a cure of fistula in ano, if possible, without dividing the sphincter muscles. We may hear all the arguments with regard to little danger of incontinence but who will not admit that when the sphincters are once divided they do not have the same contractibility on account of the scar tissue.

By the above described technic, with its several slight modifications to suit the individual case, the internal opening, or openings if several exist, is obliterated and other associated diseased conditions are removed. The sphincters are preserved intact. In those cases where the sphincters have been previously divided scar tissue may cause difficulty in the isolation and repair of this muscle. In such instances the divided ends of the sphincter should be well exposed and turned back free from the mucosa. Then after the fistula bearing cuff has been drawn down the cut edges of the sphincter ani are united. This procedure eliminates the necessity of cutting through the perineum down to the fistula and thus conserves a large amount of important tissue while also lessening the post-operative disturbance of the patient. Not only do we lessen the danger of incontinence by this method but we have less deformity than when the muscular structures are divided.

Correspondence

PROHIBITIVE INCREASE IN POSTAL RATES

Chicago, Ill., Dec. 30, 1924.

To the Editor:—A bill (H. R. 10881), now pending in Congress, proposes to make very material increases in postal rates applying to second class matter. As I understand it, the proposed rates will apply to the advertising pages of scientific publications, including medical journals.

The rates stipulated in the bill vary from four cents a pound in the first and second zones to ten cents a pound in the eighth zone for the advertising portions of these journals. This means that scientific publications, such as those of the American Medical Association and your own journal, will be called on to bear a greatly increased mailing cost.

The bill referred to above is now before committees in Congress and hearings are being held. I hope you will permit me to suggest that the

editors of all state journals immediately acquaint themselves with the provisions of the proposed bill and use such influence as they may have in opposition to its immediate passage. Advertising contracts have, of course, already been entered into for the coming year, and within the next twelve months it will not be possible to adjust advertising rates in a manner that will provide revenue for meeting the increased mailing costs.

It may be that a word to the members of Congress from your state would have good effect in preventing the imposition of the proposed larger mailing rates on scientific publications, at least until adjustments necessary to securing increased revenue can be made.

AMERICAN MEDICAL ASSN.,
OLIN WEST, M.D., Secretary.

The following is the personnel of the committees on post offices and post roads:

Membership of Senate Committee on Post Offices and Post Roads:

Thomas Sterling, of South Dakota.
George H. Moses, of New Hampshire.
Lawrence C. Phipps, of Colorado.
John W. Harrold, of Oklahoma.
Tasker L. Oddie, of Nevada.
Robert Nelson Stanfield, of Oregon.
Lynn J. Frazier, of North Dakota.
Porter H. Dale, of Vermont.
Kenneth McKellar, of Tennessee.
Nathaniel B. Dial, of South Carolina.
J. Thomas Heflin, of Alabama.
Walter F. George, of Georgia.
Park Trammell, of Florida.
Woodbridge N. Ferris, of Michigan.

Note:—Senator Moses is chairman of the committee.

Membership of House Committee on Post Offices and Post Roads:

W. W. Griest, of Pennsylvania.
Calvin D. Paige, of Massachusetts.
C. William Ramseyer, of Iowa.
Archie D. Sanders, of New York.
Samuel A. Kendall, of Pennsylvania.
C. Ellis Moore, of Ohio.
M. Clyde Kelly, of Pennsylvania.
Fiorello H. LaGuardia, of New York.
Elliott W. Sproul, of Illinois.
John E. Nelson, of Maine.
Laurence H. Watres, of Pennsylvania.
George J. Schneider, of Wisconsin.
Thomas M. Bell, of Georgia.
Arthur B. Rouse, of Kentucky.
James M. Mead, of New York.
John H. Smithwick, of Florida.
J. M. Hooker, of Virginia.
Milton A. Romjue, of Missouri.
Frank C. Sites, of Pennsylvania.
William W. Arnold, of Illinois.

William P. Jarrett, of Hawaii.
Jeff Busby, of Mississippi.

The bill proposes to increase the postal rates on advertising pages of all periodicals and the rates as set out in the bill are as follows:

For the first and second zones, 4 cents a pound;

For the third zone, 5 cents;

For the fourth zone, 6 cents;

For the fifth zone, 7 cents;

For the sixth zone, 8 cents;

For the seventh zone, 9 cents;

For the eighth zone, 10 cents.

MEDICAL TEACHER SHOULD BE ON A FULL TIME BASIS BOTH AS TO SALARY AND HOURS

Chicago, Ills., Dec. 30, 1924.

To the Editor:

1. That the members of the staff of the State Hospital of the University of Illinois who are paid a salary should be full time teachers.

(a) Part time salaried teachers devoting one-half or three-quarters of the working day of eight hours are free for the remaining eighteen or twenty hours to engage in private practice in competition with the rank and file of the general medical profession whose taxes go in part to subsidize those competitors. Permitting any practicing physician salaried by the state to enter into the open field of competitive medical practice undoubtedly savors of state medicine.

(b) Clinical men engaged in private practice regard themselves as sufficiently compensated by increased professional efficiency and prestige. The appointment of clinical teachers to part time positions has incurred the opposition of organized medicine, a thing which we believe will seriously handicap the progress of the whole system of medical education.

2. That in view of the fact that this hospital is to provide care for the sick and instruction for students, to this end the beds should be assigned to the clinical teachers of the faculty of the University of Illinois College of Medicine.

(a) Since the people of the state, through the department of Public Welfare, properly insist that their charges have the advantages of expert diagnosis and treatment and lastly will consent to their being used as teaching and research ma-

terial, it is urged that patients be assigned to the clinical teaching department.

(b) The clinical men continually meet with the problems that best lend themselves to investigation and research and therefore are best fitted to judge the merits of research procedures and interpret the results.

(c) To allow so much as a suspicion that the cure of these patients will be subordinated to any other purpose would constitute the gravest of errors.

3. That all present and future professional appointments to the Clinical Faculty should be indefinite as to time; conforming in this respect to the practice in the first two years in the College of Medicine and in the University at Urbana.

(a) The present method of appointments shows class distinction and is manifestly an unjust discrimination against clinical teachers. A feeling of security of tenure makes for continuity of effort and plan.

4. That the administrative head of the teaching faculty of the clinical years (3rd and 4th) be a clinical medical man in practice, directly responsible to the President of the University.

(a) The desirability of a practicing physician as Dean for the third and fourth years is urged because only such a man knows by life experience the physician's needs, adversities, aspirations beliefs and view points. He can blend intra-mural activities with extra-mural opinions, so that the institution can hold the respect, admiration, support and cooperation of the general practitioners and citizens of the State.

(b) He can better determine what parts of the recommendations of educational associations are locally applicable. He can better advise officials of the University concerning the practical desirability and wisdom of proposed innovations and above all he would be less likely to regard the future medical practitioners of the State as by products of a research institute or to lose sight of the fact that this College of the University of Illinois is primarily a Medical School.

J. W. D.

WHY NOT ILLINOIS?

Wheaton, Ill., Dec. 18, 1924.

To the Editor: We have one of the finest states in the union, and we ought in every thing

to be the most progressive. We have been so careful to have the best training possible for our children. We employ the most skillful of teachers. We have county and town nurses to look after the health of our public school children. We separate the slow and the defective from the normal, and we give them particular, special training to bring them up to grade, if possible. We separate the diseased from the well, and if necessary give them outdoor rooms in which to study. We look after eyes, teeth, growth, home care and other necessary adjuncts to physical and mental well being; but we do not say to the physically unfit, "You must not bear feeble-minded, imbecile, idiot and epileptic children to become a care to the community and a burden to the state." And yet ten other states in our great republic have done this very thing. Why not Illinois?

They began way back in 1909. California and Connecticut. The former has been the most progressive. She has a most wonderful law.

It has been changed and amended four times. Now they have the inmates of the homes for the feeble-minded, the hospitals for the insane, the states prisons, those suffering from perversion or marked departures from normal mentality or from disease of a syphilitic nature, pass under the attention of the state commission, which may at its discretion asexualize them. "Such asexualization whether with or without the consent of the patient shall be lawful and shall not render the said commission, its members or any person participating in the operation liable either civilly or criminally." Senate bill No. 898. California, under this law (I have given only a fragment of it), has done three thousand, six hundred operations. There is no charge for operations, other than the stated salary. Minors and children in the homes are not operated on without the consent of the parents or the guardian. The nine other states have each performed from fifty to two hundred seventy-five operations, as the cases demanded.

The reports from these cases is that it has either done no harm, or that it has been of a decided benefit.

Judge Edmund K. Jarecki has a group of three hundred children in the city of Chicago alone, and wants to know where he is to put them and how he is to get the money to care

for them. He is going to ask the legislature to help, and also the Governor. These three hundred children are either feeble-minded, imbecile, idiot or epileptic. Beside this small army of defectives there are many of the class who never get into a State institution. They are kept in private institutions or in the homes.

Dr. Barr, chief physician to the Pennsylvania Training School for feeble-minded children, says that, "In 4,050 cases of imbecility, I find 2,651 or 60.4% caused by malign heredities, 25.43% due to direct inheritance of idiocy and 6.71% due to insanity." In Pennsylvania, out of 10,000 cases, only 3,500 are sequestered.

Stockmen in all countries sterilize every animal which is not intended for breeding purposes. Ought the statesmen of Illinois to be less particular about the kind of future citizens which are to be born here, than the common stock raiser is about the kind of hogs, cattle or sheep he permits to be raised on his farm?

Do the tax payers of our commonwealth feel that they had just as soon pay more and more taxes each year to keep alive an army of imbeciles, idiots and the moron (which is the most dangerous of all defectives?)

According to the last state report of our penal institutions 7% of all crimes were offenses against chastity. Every day there is a report of some sort of a crime against young women or girls.

The normal man does not do such an offense against common law. It takes the moron, the one who lacks will power and self control. He has a diseased mind in a diseased body. Sterilize him and he will become a most useful member of society.

Four of the greatest statesmen the world has ever known were eunuchs. In the orient now, the *trusties* are eunuchs. They become so, that they may serve their country and their king. Why not have a few in Illinois? In Wisconsin the higher grades of defectives after operation married women, went back to their homes and their husbands. Nine widows remarried.

I give in addition the testimony of a woman of superior mind, the mother of two children. She had to have both ovaries removed. She says so far as her feelings are as a woman, there has been no change.

A bill is in the writing for a sterilization law for Illinois. It has a sponsor, who will in-

troduce it, when the time comes for the introduction of new bills. It will be submitted to some of our best law makers for inspection. It will be in the hands of others who are noted Eugenicists. The Medical society of one country has endorsed it.

The chairman of the legislative committee of the medical society says he thinks there will be no objection from his committee.

The president of the federated Clubs of our state says she approves of it. Will you, each practicing physician who reads this simple plea to have our children at least born of parents free from the worst heredities, write to your representative, urging him to vote for the Illinois Sterilization law when it comes up?

FRANCES C. BLANCHARD, M.D.

Society Proceedings

ADAMS COUNTY

December 8, 1924

The meeting was called to order by the President, Dr. Warren Pearce. There was an attendance of 32 present.

Dr. Pearce briefly reported the progress the Convention Committee was making. Dr. Swanberg reported the different propositions that had been submitted for a physicians' telephone exchange in Quincy. This report was freely discussed by quite a few members and finally Dr. Knox made a motion that the report be laid on the table. Seconded and carried. The Secretary read a letter from the State Society Secretary urging that members subscribe for a copy of The History of Medical Practice in the State of Illinois that was being published by the Illinois State Medical Society. He urged members to purchase a copy and suggested that the Society should support the work by securing one copy. Dr. Cohen made a motion that the Society subscribe for one copy of this historical work. Seconded and carried. Dr. Fox Rooney was made an Honorary Member of the Adams County Medical Society. Dr. R. A. Harris was elected to membership. The Secretary read his report of the year's work. Dr. A. H. Bitter made a motion that the report be received and published in full in the *Quincy Medical Bulletin*. Seconded and carried. The Secretary then read a report of the year of the *Quincy Medical Bulletin*. Dr. Center made a motion that the report be received and placed on file. Seconded and carried. Dr. Blomer gave the financial report for the year and Dr. Nickerson made a motion that the report be received and placed in the minutes of the Society. Seconded and carried.

Election of officers resulted as follows: President, C. D. Center; first vice-president, Frank Cohen; sec-

and vice-president, W. E. Davidson; secretary, Harold Swanberg; treasurer, J. H. Bloomer; delegate, T. B. Knox; alternate, A. H. Bitter; medico-legal advisor, J. A. Koch; censor, Warren Pearce; library committee, H. O. Collins. The President then appointed two members to escort the newly elected President to the chair. Dr. Center assumed the chair and made a few remarks to the Society for the confidence they had placed in him and pledged himself to do all in his power to make the coming year a most successful one.

The Secretary called the attention of the membership to the fact that the January meeting was usually a social one and made a motion that it be a social meeting and a joint one with the Woman's Auxiliary to the Adams County Medical Society and that the Entertainment Committee be in charge. Seconded and carried. Dr. Nickerson made a motion that Dr. Taylor, President of the Illinois State Medical Society be invited by the Entertainment Committee to attend our social meeting in January. Seconded and carried. Dr. Knox made a motion that the usual Honorarium be awarded the Secretary. Dr. Koch amended the motion that the Honorarium be increased to \$50.00 because of the unusual amount of work that the Secretary had done during the year. Seconded and carried. The Secretary then thanked the Society for their generosity and announced that he would turn this \$50.00 over to the Convention Committee as his contribution toward the convention expenses.

Dr. Arthur Bitter then read an interesting case report of a case of Chronic Nephritis in a young girl 14 years of age which presented a very peculiar symptomatology and in which an autopsy was performed. The case was discussed by nearly the entire membership. Dr. J. W. Bitter then presented an interesting case of Obstetrics. This was discussed by Drs. Center, Koch, Beirne, Miller, Montgomery, and Williams.

The Secretary called the attention of the membership to the great interest that had been shown in these Case Reports at this meeting and stated that it would be the intention of the Program Committee to continue these case reports at each meeting unless the membership desired otherwise.

HAROLD SWANBERG, M. D.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Joint Meeting Chicago Medical Society, and Chicago Society of Anaesthetists, Nov. 19, 1924

Further Observations on Methods of Evaluating Surgical and Anaesthetic Risks. (Illustrated by lantern slides)
F. H. McMechan, Avon Lake, Ohio
 The Insulin-Glucose Treatment of Surgical Shock and Non-Diabetic Acidosis.....
David Fisher, Milwaukee, Wis.
 Discussion
 Dean Lewis, Prof. A. J. Carlson, William R. Mecker, Solomon Strauss.

New Anaesthetic Properties of Carbon Dioxide-Oxygen Mixture
Ben Morgan
 DiscussionKarl Meyer

Regular Meeting, Nov. 26, 1924

DIAGNOSTIC CLINIC

Demonstration of Eye Cases.....Michael Goldenburg
 Gall Bladder and Spleen Cases....Arthur Dean Bevan
 Diaphragmatic Hernia.....Julius H. Hess

Regular Meeting, Dec. 3, 1924

1. Radio-frequency Electricity in Surgery. (Moving Picture Demonstration)....Nelson H. Lowry
 Discussion.....Ed. H. Hatton
 2. Light Therapy of Surgical Tuberculosis.....
Axel Reyn,
 Director Finsen Light Institute, Copenhagen,
 Denmark
 Discussion.....Henry Schmitz, J. S. Coulter

Regular Meeting, Dec. 10, 1924

Symposium on Ringworm

Ringworm of the Scalp and Face...Edward A. Oliver
 Ringworm of the Body.....Francis Senear
 Ringworm of the Extremities..James Herbert Mitchell
 Lantern Slide Demonstration
 Discussion by Wm. Allen Pusey and David Lieberthal

Regular Meeting, Dec. 17, 1924

Diagnostic Clinic

1. Gynecological Cases Illustrating Newer Methods of Diagnosis. Lantern Slide DemonstrationIrving F. Stein
 2. Diagnosis and Management of Paralysis of Lower Extremities with Special Reference to Gluteal Paralysis.....Phillip H. Kreuscher
 3. Neurological Cases.....Lewis J. Pollock

ROCK ISLAND COUNTY

The Rock Island County Medical Society held the regular meeting in the LeClaire Hotel, dinner being served at 6:30 and the meeting following at eight. There were thirty-five members present.

Dr. Julius Hess, Professor of Pediatrics, University of Illinois, School of Medicine, Chicago, Ill., gave an interesting talk on "Some Chronic Abdominal Conditions in Children," with slides to illustrate.

Dr. M. D. Ott of Davenport, Iowa, child specialist, gave an address on "The Artificially Fed Baby," and is to be complimented very highly on his effort, as the address was well given and contained much food for thought.

Dr. Louis Ostrom of Rock Island, read a letter from Dr. Tucker, of Philadelphia, about Dr. C. Jackson's Bronchoscopy Clinic and later a moving picture was shown of the clinic.

A. T. LEIPOLD, *Pres.*
 J. H. FOWLER, *Secy.*

Marriages

GEORGE M. BLACKBURN to Mrs. Tulie Clark, both of Minier, Ill., October 31.

LESLIE W. BLACKWOOD of Chicago to Miss Bernice Tallefson of Rockdale, Wis., November 22.

EDWIN J. BREWER to Miss Ethel Jackson, both of Shabbona, Ill., at Genoa, October 16.

EDWARD VINCENT DEL BECCARO to Miss Carolyn Tunno, both of Chicago, November 13.

FRANK MARTIN KEISER to Miss Bessie Williams, both of Murphysboro, Ill., November 3.

ROBERT I. LAW to Mrs. Sarah Isabelle Chalender, both of Galesburg, Ill., November 5.

ROBERT FRANKLIN STEPHENS to Mrs. Mattie Croy, both of Toledo, Ill., October 9.

HERMAN HEMINGWAY TUTTLE, Springfield, Ill., to Mrs. Charles J. Sinnott of New Orleans, December 8.

Personals

Dr. Lydia H. Holmes, Pekin, has been appointed superintendent of the Fairview Sanatorium, Bloomington.

Dr. Henry W. Sandeen, Woodstock, has been appointed county physician of McHenry county.

Dr. William O. Krohn sailed from San Francisco, November 22, for a trip around the world.

At a meeting of the Chicago Tuberculosis Society, December 11, Dr. James S. Pritchard, Battle Creek, Mich., spoke on "Thoracic Conditions Simulating Pulmonary Tuberculosis."

Dr. Clarence L. Whitmire has been appointed assistant managing officer of the Jacksonville State Hospital, to succeed Dr. Thomas G. McLin, resigned.

At the ninth annual meeting of the Institute of Medicine, City Club, December 2, the president, Dr. Cassius D. Westcott, gave an address on "What Should the General Practitioner Know About the Eye?" and Dr. George H. Weaver, an illustrated lecture on "The Beginning of Medical Education In and About Chicago; the Institutions and the Men."

At the December 22 meeting of the Chicago Society of Internal Medicine at the City Club, Dr. Herman L. Kretschmer, Chicago, spoke on "Hematuria," Dr. Richard H. Jaffe on "Kidney Changes in Hypertension," and Theodore Kappany, department of physiology, University of Chicago, on "Transplantation of the Eye in the Spotted Rat with Some Recovery of Visual Function."

Brief reports of the postoperative findings of patients with spastic paralysis operated on recently in Chicago by Dr. N. D. Royle, Sydney, Australia, were made at the Chicago Orthopedic Club, December 12, by Drs. Moore, Jacobs, Parker, Lewin and Ryerson. Among others who took part in the discussion at this meeting were Dr. Hugh T. Patrick, Dr. John Ridlon and A. J. Carlson, Ph. D.

Axel Reyn, director, Finsen Light Institute, Copenhagen, Denmark, addressed the Chicago Medical Society, December 3, on "Light Therapy of Surgical Tuberculosis." There was a dinner in honor of Dr. Reyn at the Hamilton Club preceding the meeting.

The board of governors of the Institute of Medicine announce the following elections for the coming year: Drs. James B. Herrick, president; Charles A. Elliott, vice-president; George H. Coleman, secretary; Dallas B. Phemister, treasurer, and Ludvig Hektoen, chairman of the board of governors.

Dr. R. W. McNealy of Chicago addressed the Des Moines County Medical Society which met at Burlington, Iowa, on December 9. The subject was, "Some Practical Problems in Blood Vessel Surgery."

Dr. C. L. Whitmire has been appointed assistant managing officer of the Jacksonville State Hospital. Dr. Whitmire takes the position recently left vacant by the resignation of Dr. Thomas McLin, who is associated with a government hospital at Camp Custer, Mich.

Dr. Anton Mueller, commandant of the sanitary training detachment of the American Red Cross Chicago Chapter, received a beautiful plaque and diploma of honor from the Czechoslovak Red Cross, signed by Dr. Al. Masarik, president, as reward for his voluntary services rendered to families where husbands served in the last war.

News Notes

—The state supreme court upheld, December 16, the medical practice act of 1923. The appeal was brought by a naturopath, who was fined \$500 and costs in the Chicago municipal court.

—The Minneapolis, St. Paul & Sault Ste. Marie Railway Surgical Association held its seventeenth annual meeting at the Hotel Sherman, December 2 and 3, under the presidency of Dr. Frank Gregory Connell, Oshkosh, Wis.

—Loyola University announces the purchase of the property at 2709 Prairie Avenue, on which there is now a 25-room stone building. The purchase was made for the school of medicine, to be used for the upper classes in connection with their clinical work at Mercy Hospital.

—Francisco Padillo, Joliet, recently represented himself as a physician, promising to cure the daughter of Doneta Lopes of advanced tuberculosis. Padillo, having managed to collect a \$500 fee before the patient died, was arraigned before Judge McCulloch, December 5, and unable to furnish bonds, was sent to jail, it is reported.

—A large dormitory building for professional students is contemplated for the west side of Chicago in the heart of the medical and dental school district. It is to be erected under the auspices of the Y. M. C. A., and, as proposed, will cost \$500,000, of which \$50,000 has been raised among the professional students themselves.

—A committee, comprising representatives of a committee of the state medical society and the board of public health advisers, state department of health, has been appointed to work out a practical plan for conducting a goiter survey in Illinois. The committee is of the opinion that the county medical societies should have charge of collecting the necessary information.

—Prof. Julius Stieglitz, Ph. D., chairman of the department of chemistry, addressed the one hundred and thirty-fifth convocation of the University of Chicago, December 23, on "Chemistry in the Service of Man." One hundred and eighty-eight degrees were conferred, Rush Medical College conferring seventeen four-year certificates and thirteen M. D.'s.

—The Elizabeth McCormick Memorial Fund, 818 North Dearborn street, Chicago, maintains

a library of several thousand volumes on nutrition, health education, school hygiene, mental hygiene and child psychology, as well as the standard periodicals. This library is at the disposal of health and social service workers and others interested in child welfare. There is a package service maintained, and the only expense is the cost of transportation.

—Tuberculosis caused the death of 5,557 persons in Illinois in 1923; five years ago the number was 8,579. Most of the voluntary tuberculosis work in this country is supported by the annual sale of Christmas seals, a fund mainly devoted to an educational and preventive program. In this state, Morgan county voted at the recent election a tax to be used to construct and maintain a tuberculosis sanatorium. The county board has already endorsed the plans for the sanatorium and authorized the sanatorium board to advertise for bids for construction.

—The Edward C. Seufert Memorial Clinic of the American Hospital, Chicago, was dedicated December 24, and a dinner in honor of the occasion was given at the Sovereign Hotel. Among the guests were Dr. Jeremiah H. Walsh, president, Chicago Medical Society; Dr. Charles J. Whalen, editor, *ILLINOIS MEDICAL JOURNAL*; Dr. Jacob C. Krafft, president-elect, Illinois Medical Society; Dr. Solomon Greenspahn, trustee of the hospital; Dr. Frank B. Earle, emeritus professor of pediatrics, University of Illinois College of Medicine, and Mr. A. M. Shelton, state director of registration and education. Dr. Max Thorek was toastmaster.

—The federal narcotic office desires to apprehend a man who calls himself Demster or Gilbert when calling on physicians in this city and vicinity with a letter bearing the forged name of Dr. Emil Rics requesting prescriptions for large quantities of morphin for him. Dr. Rics has never written such a letter, but several physicians have been deceived into giving prescriptions. The forger is about 30 years of age, 65 inches tall, weighs 140 pounds and has dark brown hair. Information should be communicated to the federal narcotic office, Wabash 8059, or the man should be arrested.

—The state diagnostic laboratory examined 85,877 specimens in the last fiscal year, 40 per cent of which were for the diagnosis of diphtheria and 33 per cent for the diagnosis

of syphilis. Kane county submitted more specimens than any other county; its rate was seventy specimens per thousand population. Macon county was second. Pike county sent only seventeen specimens and Calhoun but six during the year. The cost of examining a specimen in the state laboratory was about 47 cents, and 6 per cent of the public health appropriations for Illinois went to the laboratory. According to the Illinois State Department of Public Health, 41 per cent of the public health appropriations in New York go to the diagnostic laboratory.

—A committee of more than 100 prominent Chicagoans, the chairman of which is Dr. Frank Billings, is working to raise a fund of \$100,000 to establish in Chicago a monument to Pasteur and a research scholarship, national in scope, which will be open to all American students. A fountain surmounted by a bust of Pasteur, has been submitted by the French sculptor, Leon Hormant, and a special committee has undertaken to select a site for the monument. Universities are responding to the research scholarship, appointing their own Pasteur committees to decide what part they will take in this memorial campaign. The University of California heads the list of those who have responded to the appeal. Headquarters for the campaign are at 108 South La Salle street.

—The units of the new Graduate School of Medicine at the University of Chicago intended for immediate construction comprise two groups. The Billings Hospital, which will face south on the Midway between Ellis and Drexel avenues, includes the administration building, a clinic for internal medicine and the medical specialties and one for general surgery and surgical specialties. This group will house the Billings Library. The physiology group of buildings, occupied by the departments of physiology, physiologic chemistry, and pharmacology, will be erected on the south side of Fifty-eighth street between Ellis and Drexel avenues and will connect with the hospital group. The buildings will be Gothic to harmonize with the other university buildings.

—The January meeting of the Chicago Council of Medical Women will be held Tuesday, January 27, at 8 p. m., at the American College of Surgeons, 40 East Erie Street.

The theme of hemorrhage will be continued with particular attention this month to surgery.

PROGRAM

Surgical Risks.....Alice Conklin
Hemorrhage During Operation and

Hemostatics.....Lena K. Sadler
Secondary Hemorrhage.....Anna E. Blount

Discussion: Rachel Hickey Carr and Gay
Durbin Ries.

Members of the profession are cordially invited.

Dinner at 6:30 at the Petit Gourmet, 615 North Michigan Boulevard, for members and their friends.

Telephone reservations to Superior 1184.

BERTHA VAN HOOSSEN,
Chairman Program Committee.

—The Rockefeller Institute for Medical Research has announced the release of the drug known as Tryparsamide for use in the treatment of human and animal trypanosomiasis (African sleeping sickness and *mal de caderas*) and selected cases of syphilis of the central nervous system. This action is based on results reported from clinical investigations which have been in progress for several years. The drug will be manufactured by the Powers-Weightman-Rosengarten Co. of Philadelphia, and will become available through the regular trade channels about January 1, 1925. In releasing the drug for the benefit of the public, the Rockefeller Institute desires it to be known that the institute does not share in any way in profits that may be derived from the sale of the drug and that, with the cordial co-operation of the manufacturers, provision has been made for the maintenance of a schedule of prices on as low a basis as possible.

—The American Board of Otolaryngology was organized in Chicago on November 10. The following constitute the board of directors: Drs. Harris P. Mosher, Boston, president; Frank R. Spencer, Boulder, Colo., vice-president; Hanau W. Loeb, St. Louis, secretary and treasurer; Thomas E. Carmody, Denver; Joseph C. Beck, Chicago; Thomas H. Halsted, Syracuse, N. Y.; Robert C. Lynch, New Orleans; Burt R. Shurly, Detroit; Ross H. Skillern, Philadelphia; William P. Wherry, Omaha. The office of the board is at 1402 South Grand boulevard, St. Louis, Missouri. The board comprises representatives of the five national otolaryngologic associations;

the American Otological Society, the American Laryngological Association, the American Laryngological, Rhinological and Otological Society, the American Academy of Ophthalmology and Otolaryngology, and the Section of Laryngology, Otology and Rhinology of the American Medical Association. The object of the association is to elevate the standard of otolaryngology, to familiarize the public with its aims and ideals, to protect the public against unqualified practitioners, to receive applications for examination in otolaryngology, to conduct examinations of such applicants, to issue certificates of qualification in otolaryngology and to perform such duties as will advance the cause of otolaryngology. The first examination will be held at the time of the meeting of the American Medical Association.

—At a meeting of the Central Illinois Eye, Ear, Nose and Throat Society, held in Champaign, December 2, 1924, Dr. Thomas J. Carmody of Danville was elected president, Dr. Frank L. Alloway of Champaign, secretary.

No permanent organization will be formed until the state meeting at Quincy. Several preliminary meetings will be held in the meantime. It is hoped that all the men outside of Cook county will join this organization so worth while. Clinics can be held down state for the benefit of the men who can not attend the Chicago meetings.

The next meeting will be held in Peoria in February.

—The following officers were elected for 1925 in the Kankakee County Medical Society: President, R. V. Thomas, Monteno; secretary, H. E. Delavergne; vice-president, J. H. Roth; treasurer, H. E. Delavergne; censors, J. A. Bundy, Chas. R. Lockwood, B. F. Uran; delegate, A. J. Goodwin, all of Kankakee.

—At the regular monthly meeting of the Morgan County Medical Society, December 11, 1924, the following were elected as officers for 1925: President, R. R. Jones, Woodson; vice-president, D. W. Reid, Jacksonville; secretary, Bert Trippeer, Jacksonville; treasurer, Bert Trippeer, Jacksonville; librarian, E. Black, Jacksonville; censor, A. J. Ogram, Jacksonville.

—The following officers were elected in the Champaign County Medical Society for the year 1925: President, Dr. H. C. Kariher; vice-pres-

ident, Dr. Wm. M. Honn; secretary and treasurer, Dr. C. George Appelle; censors, Drs. Schowengerdt, Newcomb and Diller; delegate, Dr. Earl Wise; alternate, Dr. John Martin; medical defense, Dr. T. J. McKinney.

—Champaign county Medical Society elected the following officers: President, H. C. Kariher; vice-president, Wm. M. Honn; secretary-treasurer, C. G. Appelle; censors, Drs. Schowengerdt, Newcomb and Diller; delegate, E. D. Wise; alternate, John Martin; medical defense, T. J. McKinney.

The society has seventy-three members, most of them "live wires." Meetings are monthly and well attended. Once every year we invite Vermilion County Medical to a joint meeting and once every year Vermilion reciprocates. The Champaign County Medical Society was organized in 1859 and hence is now in its sixty-fifth year.

—The Rock Island County Medical Society elected the following officers for 1925: President, A. T. Leipold, Moline; first vice-president, Ralph Dart, Rock Island; second vice-president, A. E. Williams, Rock Island; secretary, J. Henry Fowler, East Moline; treasurer, D. F. Paul, Rock Island; medico-legal advisor and legislation, G. D. Hauberg, Moline.

The following officers were elected for 1925 in the Effingham County Medical Society: President, Dr. Henry H. Heuck, Sigel; 1st vice-president, Dr. F. W. Goodell, Effingham; 2nd vice-president, Dr. E. L. Damron, Effingham; secretary, Dr. Harry W. Schumacher, Altamont; treasurer, Dr. S. F. Henry, Effingham; delegate, Dr. F. Buckmaster, Effingham; alternate, Dr. C. F. Diehl, Effingham.

Deaths

ALEXANDER BEHRENDT, Chicago (licensed, Illinois, 1884); a Fellow, A. M. A.; aged 68; died, November 10, of an overdose of a hypnotic, while suffering from ill health.

CHARLES CHOISSER, Eldorado, Ill. (licensed, Illinois, 1878); aged 87; died, November 18, following a long illness.

GEORGE A. CLOTFELTER, Hillsboro, Ill.; Missouri Medical College, St. Louis, 1893; served during the Spanish-American and World wars; aged 57; died, November 11, at the Hillsboro Hospital, of angina pectoris.

JOSEPH JACOB DAVIS, Kincaid, Ill.; Rush Medical College, Chicago, 1886; aged 61; died, October 21, at Minneapolis, of carcinoma of the rectum.

THEODORE EDWARD DE PONDROM, Chicago; Drake University College of Medicine, Des Moines, 1886; aged 72; died, October 13, of arteriosclerosis and chronic myocarditis.

ASA NATHAN DEVAULT, Chicago; University of Illinois College of Medicine, Chicago, 1900; member of the Illinois State Medical Society; aged 56; died, November 15, of pneumonia.

TALBOT CHARLES GERON, Bloomington, Ill.; Rush Medical College, Chicago, 1889; aged 55; died, December 9, following a long illness.

LAURENCE DE LANCY GORGAS, Chicago; University of Maryland School of Medicine, Baltimore, 1883; a Fellow, A. M. A.; aged 63; died, November 26, of endocarditis and pneumonia.

EDWARD DAVID GOTCHY, Chicago; Dearborn Medical College, Chicago, 1904; a Fellow, A. M. A.; aged 59; died suddenly, December 9, of cerebral hemorrhage.

SAMUEL F. HART, Joliet, Ill.; Medical College of Evansville, Ind., 1882; aged 76; died, September 3, at Chicago, of dysentery.

SAMUEL ASBURY HOLMES, Jerseyville, Ill.; Rush Medical College, Chicago, 1881; Civil War veteran; aged 82; died recently.

WILLIAM H. KIRBY, Chestnut, Ill.; Chicago Medical College, 1877; a Fellow, A. M. A.; also a druggist; formerly postmaster of Chestnut; aged 73; died suddenly, December 2, of heart disease.

WILLIAM A. KNOX, Chicago; Jefferson Medical College of Philadelphia, 1854; Civil War veteran; aged 92; died, October 30, of cerebral hemorrhage.

JAMES G. MCBRIEN, Alton, Ill.; St. Louis (Mo.) College of Physicians and Surgeons, 1899; aged 61; died, December 3, of cerebral hemorrhage.

RUDOLPH MENN, Chicago; University of Vienna, Austria, 1886; formerly on the staffs of the Columbus, Grant and Cook County hospitals; aged 62; died, December 2, at St. Luke's Hospital, of peritonitis following an operation for carcinoma of the colon.

LOUIS JAMES MEURER, Evansville, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1899; aged 50; died, November 7, of angina pectoris.

JOSEPH HENRY NEWTON, Mount Vernon, Ill. (licensed, Illinois, 1877); aged 87; died, November 24.

HIRAM LOWELL PEASE, Chicago; Northwestern University Medical School, Chicago, 1877; aged 75; died, November 22, of cerebral hemorrhage and arteriosclerosis.

WILLIAM KOENIG SPIECE, Chicago; University of Illinois College of Medicine, Chicago, 1895; a Fellow, A. M. A.; associate professor of ear, nose and throat diseases, Loyola University School of Medicine, Chicago; on the staffs of the Illinois Masonic Hospital

and the Illinois Eye and Ear Infirmary; aged 52; died, November 28, of pneumonia.

EUGENE SOLOMON TALBOT, Chicago, well known as a leader in advancing the specialty of stomatology; died, December 20, aged 77 years, from internal hemorrhage associated with duodenal ulcer. Dr. Talbot was born in Sharon, Mass., March 8, 1847. He received the degree of D.D.S. from the Pennsylvania Dental College in 1871, and the M.D. degree from Rush Medical College in 1880. He also had conferred on him the degrees of LL.D. by Kenyon College in 1902, of M.S. by Whitman College in 1903, and Sc.D. by the University of Pennsylvania in 1915. He was an honorary member of the Sociedad Odontologica Española, the Odontologische Gesellschaft, l'Association Générale des Dentistes de France, the Chicago Pathological Society and many other scientific organizations. He was professor of stomatology in Rush Medical College, in the Illinois Medical College and in the Women's Medical College of Northwestern University. In the American Medical Association he was largely instrumental in founding the Section of Stomatology, and served as its secretary from 1901 to 1918 and as chairman from 1918 to 1919. He was also a delegate from the section in the House of Delegates in the 1921, 1922 and 1923 sessions. At Portland, Ore., in 1905, and again at Atlantic City in 1919, he was elected third vice-president of the American Medical Association. Dr. Talbot contributed largely to the literature of his specialty; concerning himself particularly with histopathology of the jaws and dental tissues, gingivitis and dental neurology. His published books include "Degeneracy: Causes, Signs, Results," 1898; "Development Pathology, a Study in Degenerative Evolution," 1911; and "Intestinal Gingivitis and Pyorrhea Alveolaris," 1913. For his fundamental scientific studies and for his leadership and ideals, both by precept and example, Dr. Talbot's name will have enduring memory.

ANDREW ROBERT WARNER, Chicago; Western Reserve University Medical School, Cleveland, 1906; died at his home in Deerfield, Ill., November 27, of heart disease, following an illness of several months. He graduated from the Hamilton College in 1899. After his graduation in medicine, he practiced in Cleveland for a few years, becoming assistant superintendent and later superintendent of Lakeside Hospital. From the beginning of his hospital career, he was interested in the work of the American Hospital Association, of which he was president in 1918-1919. In November, 1919, he became executive secretary of the American Hospital Association, which position he held until his death. He was a prime mover in the development and organization of the American Conference on Hospital Service and in many activities related to the development of hospitals in the United States.

PETER H. WESSEL, Moline, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1871; a Fellow, A. M. A.; formerly member of the state board of health; for eight years mayor of Moline; aged 85; died, December 10, of cerebral hemorrhage.



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W. F. GRINSTEAD, Cairo.....	1925

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Membership correspondence to Dr. Harold M. Camp, Monmouth, Ill.

Society proceedings and news items and changes in the mailing list to Dr. Henry G. Ohls, Managing Editor, 7626 Bosworth Avenue, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

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Editorial

TRUTH ABOUT TYPHOID AND THE DRAINAGE CANAL

During the last twenty years successive health commissioners have asserted that the Chicago drainage canal, by diverting the flow of sewage from the source of public water supply, was the agency chiefly responsible for "pushing typhoid fever to the vanishing point in the City of Chicago."

Now, however, comes one of our distinguished ex-health commissioners, whose ability in handling figures is startling to say the least, with some statements that tend to cast doubt on the drainage canal as a factor in typhoid elimination. If permitted to stand unchallenged, these statements may prove a source of embarrassment in the current effort to protect Chicago's water supply. Under existing circumstances we feel compelled to give our readers some official statistics, compiled from public records and with very brief comment will leave the matter to individual judgment.

Before discussing the statistical data herewith presented it should be understood that sound statistical practice requires that data relating to diseases subject to epidemic prevalence, when employed for purposes of comparison, must be based on figures for periods of years,—usually ten-year periods,—in order that epidemic influences may be equalized and improper deductions minimized. Any comparison of morbidity or mortality data, year for year, may be and frequently is misleading.

Some of the statements reported to have been made and which are subject to correction or amplification are as follows:

1. "Typhoid was steadily diminishing prior to the opening of the drainage canal."

The official records fail to support this statement when put to the test of sound statistical

practice. *Increased typhoid death rates were the rule for the three ten-year periods prior to the opening of the drainaage canal in 1900 to-wit:*

Typhoid death rates per 100,000 of population for three 10-year periods prior to opening drainage canal.

10-year Periods	Typhoid Death Rate
1870-1879	62.2
1880-1889	62.9
1890-1899	66.8

2. "The drainage canal was opened in 1900, but there were more deaths from typhoid in 1901 and 1902 than in 1900, nevertheless."

This statement is correct so far as it goes, *but it doesn't go far enough.* It is a fine example of how statistical data may be improperly or unscientifically employed when one desires to make a certain point.

In the first place, it should have been explained, in all fairness to the intelligence of the assembly addressed, that although the drainage canal was opened January 2, 1900, it was not in full operation and did not even partially achieve its purpose until 1908, eight years after its opening. At this later date, more of the intercepting sewer systems were placed in operation *and then, and not until then, was Chicago's sewage wholly diverted from the source of its water supply. In other words, the drainage canal was only partially functioning during the period 1900-1908, and it was not until 1908 that it was approximately serving the purpose for which it was constructed, viz: diverting the city's sewage from Lake Michigan, the source of water supply.*

In the second place, this comparison of death rates from an epidemic disease, one year with another, with sources of infection only partially removed, is not in accord with sound statistical or scientific practice.

The public impression which naturally arises from such incomplete or incorrect statements is that the drainage canal has been a negligible factor in the reduction of typhoid fever and that the dangers now threatening Chicago from stoppage of full functioning of the drainage canal are more imaginary than real.

Let us see what the official records show:

TYPHOID DEATH RATES; 10-YEAR PERIODS

Before and After Opening of Drainage Canal

	Death Rates 10-yr. Periods per 100,000 population	Points Reduction Or Increase over Preceding 10-yr. Period
1870-1879	62.2	...
1880-1889	62.9	+0.7
1890-1899	66.8	+3.9
1900-1909	22.7	-44.1 (a)
1910-1919	6.4	-16.3 (b)
1920-1924 (5 yr.)	1.3	-1.6 (c)

(a) Drainage canal opened January, 1900. Intercepting sewers completed, 1908.

(b) Pasteurization of milk begun 1910 (about 50% of supply pasteurized by 1912.) Chlorination of water supply partially done 1912-16. All water chlorinated after December, 1916.

(c) Comparing last two 5-year periods.

In the ten-year period following opening of the drainage canal the typhoid death rate (per 100,000 of population) dropped 44.1 points, notwithstanding the fact that a large part of Chicago's sewage was deposited in the lake until 1908. The reduction in the following decade was 16.3 points and there is abundant reason to believe that a large part of this reduction was due to further improvement in the water supply brought about by opening of the intercepting sewers in 1908.

There are, of course, other factors contributing to the reductions since 1910, viz: pasteurization of about 50 per cent of the milk supply, begun in 1910, and chlorination of the water supply partially done during the period 1912-16 and wholly done since December, 1916.

It is obvious, too, that neither pasteurization of milk supplies nor chlorination of water supply had anything whatever to do with the great reductions noted in the typhoid rates in the decade 1900-1909. That reduction is due almost wholly to a purer water supply.

If Chicago is compelled to throw its sewage into the lake prior to the completion of sewage treatment plants and water filtration plants, it may expect a repetition of its former sad experiences.

Insufficient flow in the Chicago River towards the drainaage canal means sewage flow to the lake.

Somehow, we have a feeling that it is vastly more important to conserve human health and life than it is to promote navigation and water power. The saving of one life outweighs all commercial considerations. Those who think and act otherwise should be put squarely on record and held to account.

MILK, THE FOOD, OR MILK, THE POISON, WHICH? WHAT KIND OF MILK DO YOU AND YOUR FAMILY DRINK?

Knowledge of the dual nature of milk, though increasing slowly, is responsible for the growth and popularity of certified milk as food for babies, invalids and the aged.

During the last thirty years, in Chicago alone, the daily sales of certified milk have increased from one quart to 15,000 quarts.

The Dr. Jekyll-Mr. Hyde nature of milk depends upon the questions of cleanliness and bacteria content. Though milk from cows or goats, and in some countries, asses, is the agreed "Mother's food that lasts through life," interesting and rather staggering figures reveal beyond dispute that only too often milk is not what it ought to be.

In company with fire, water, electricity and other powerful primitives, milk shares both protective and destructive qualities. Impure or bad milk is as lethal as an overdose or misuse of arsenic, strychnine, mercury or the deadly alkalis or acids.

Only too often the foaming glass of creamy milk, rich enough to the palate, clear enough to the eye is a beaker of concentrated plague juice.

Milk, to a degree is made safe by pasteurization, provided the subsequent handling and delivery conform to the rigid laws of cleanliness. Dirt breeds bacteria and milk feeds harmful bacteria as faithfully as it nourishes succoring cells.

To begin with milk should be kept clean at the start in so far as possible, and secured only from clean herds and clean environment.

Certified milk is that kind of milk. Certified milk is drawn in clean sheds by clean and healthy milkers from clean and healthy cows. It is clean, healthy *raw* milk, and approaches as nearly to being the perfect substitute for mother's milk as science has been able to provide for infants, deprived for one of many reasons of their natural food supply. Even when certified milk has to be modified for the stomachic demands of unusual or ailing infants, this same certified milk is far and away the best basis for such modification. It has the vitamins, the living cells.

Up until a few short years ago it was practically impossible, and at the best always difficult to secure anywhere clean, raw milk, produced under such sanitary conditions as would make it

safe for infants, or for a long line of complicated invalids. As a consequence, with the cooperation of the medical profession and under the direction thereof, certified milk dairies have been established.

Owners of certified milk dairies have had a long and bitter struggle to bring their products up to the present standard.

The task involves constant farm inspections. These inspections cover herds, employes and equipment. To further insure the maintenance of certified milk quality, there are daily tests by the Medical Milk Commission and by the local health department.

As a result of this extreme care, there results a low bacteria count. An invaluable asset this for invalids as well as infants with whom food dependence must be placed upon milk. Such individuals are without the resistance necessary to fight bacteria of a harmful sort.

Many authorities recommend that certified milk shall be given a child at least during the first year and a half of its life, but longer if possible.

For children and for the sick especially, the most exceptional food values should be considered. Under any conditions there is more real food content and dietetic value in a quart of milk than in any similar quantity of any other food. To quibble as to price in this instance is to be pennywise and pound foolish.

Pasteurized milk costs more to handle than does dirty milk. Certified milk costs more than either, but it is really milk with an insurance rider attached—a clause insuring health and nourishment.

In this connection it must be noted again that no matter how clean milk may be at the start, unless care is constant it may be contaminated following delivery to the dealer or even in the home. Sometimes a false sense of security leads to an abrogation of further precaution.

Milk can become contaminated as quickly as ice can melt in the sun. The purer the milk to begin with, the quicker the sullying can be made.

Purity in production is wasted by defiling aftercare.

Of paramount importance is the care of milk in dispensing stations and in the home. If certified milk is left open in the home where dust and dirt can get into it, then it might almost as well never have been certified milk to begin

with. All the money, energy and care bestowed upon the production of certified milk is wasted, literally thrown away if this passion for purity and cleanliness does not follow the milk until the last drop is used as food. And this same statement maintains upon the useful pasteurized milk. It can never attain the heights of the perfect food that certified milk boasts, nor replace pure raw milk, and pasteurized milk is a mere makeshift between dirty milk that is raw poison and certified milk, the perfect food. Pasteurization kills bacteria but does not remove dirt.

Numerous certified milk farms supply Chicago. These have been visited frequently during the past few months by groups of Chicago physicians, and these inspections will be continued during the spring and summer.

There is not as much difference between odoriferous chlorinated lake water and icy-cold and sparklingly pure tested natural spring water as there is between pasteurized and certified milks. It is worth the while of every milk buyer to know the truth about milk, and its current, scientific production. Whether milk is used for ill-nourished adults or for helpless infants, whether the choice of the housewife or the prescription of the physician, the variations in this useful food are such that all its possibilities both good and bad should be made a matter of common knowledge. The American Milk Commission maintains local representatives throughout territories where certified milk is produced. From these representatives information is available both for the profession and for the laity.

The milk question is a health question. Often the milk used or the lack of it swings the balance between health and disease, or between life and death. The dairy farmer who sets forth an impeccable product is the right hand man for the physician and the dietician.

NATIONAL BABY CONGRESS AND HEALTH EXPOSITION

REPORT ON PROGRESS

The Committee of the Council of the Illinois State Medical Society is pleased to report that substantial progress has been made in the plans for society sponsorship and supervision of the forthcoming National Baby Congress and Health

Exposition to be presented in the American Exposition Palace, Chicago, May 2nd to 9th, inclusive, 1925.

The presidents, presidents-elect and secretaries of the American Medical Association, the Illinois State Medical Society and the Chicago Medical Society have consented to act in an advisory capacity to the Committee of Medical Supervision. Members of the Medical Advisory Board are: Dr. William Allan Pusey, president; Dr. William D. Hagard, president-elect, and Dr. J. H. Walsh, secretary, Board of Trustees, American Medical Association; Dr. Louis C. Taylor, president; Dr. J. C. Krafft, president-elect and Dr. Harold M. Camp, secretary, Illinois State Medical Society; Dr. J. H. Walsh, president; Dr. Malcolm L. Harris, president-elect; Dr. R. R. Ferguson, secretary, Chicago Medical Society.

Among the important arrangements proposed and accepted are the following:

1. The objects of this exposition shall be to furnish the public thoroughly dependable information and guidance in all matters relating to the health, physical and mental upbuilding, comfort, safety and general betterment of our people.

2. This exposition is NOT FOR PROFIT, that any surplus over and above legitimate expenses shall be returned pro rata to those exhibitors contributing financial support by purchase of exhibit space.

3. This exposition shall not be for exploitation of any individual or group and shall not have any private promotional or political aspects.

4. No exhibit, article, demonstration or thing shall be admitted to or permitted in this exposition which does not conform to the ethical and scientific standards of the American Medical Association and the Illinois State Medical Society, and that the Committee of the Council of the Illinois State Medical Society shall have sole and final determination in all such matters.

5. No financial or legal obligations, promotional or otherwise, shall be imposed upon the Illinois State Medical Society, its representatives, individually or collectively, on account of this exposition.

6. All organizations, firms, corporations or individuals, commercial or educational, contributing to individual and community health, child welfare, public safety, physical comfort and betterment may be admitted to this exposition; provided that they meet with approval and agree to conform to the rules and regulations of the Medical Committee of Supervision of the Council of the Illinois State Medical Society.

7. Certificates of Merit may be awarded to exhibitors; Provided that their products or works conform to the ethical and scientific standards of the American Medical Association, the Illinois State Medical Society and to the requirements of law and of governmental agencies, and Provided further, that these certificates may be recalled or revoked at any time that the Committee of Supervision of the Illinois State Medical Society may determine, after proper hearing, that such action is warranted and by them approved.

The Committee of Medical Supervision, appointed by the Council of the Illinois State Medical Society, shall have sole and full authority to make and enforce rules and regulations affecting Certificates of Merit.

PRELIMINARY WORK WELL ADVANCED

The Medical Committee has kept in close touch with the development work which up to this time has related chiefly to interesting reputable business concerns in taking space for exhibit purposes. The support thus far developed is very encouraging.

Many of our most successful business men have not failed to recognize that the American Public has developed a new sense—"health sense"—and that there is an ever increasing demand for those things which actually contribute to personal health and physical efficiency. There is, therefore, an increasing appreciation of the fact that it pays to advertise the health merits of commercial products and that when this advertising can be done under proper auspices such as is afforded by the National Baby Congress and Health Exposition, very material business advantages are obtained.

Then again, we find that many of our leading business men are interested in and ready to

support this exposition, not from consideration of immediate financial return but rather from a desire to encourage a real health educational movement and in this way render important public service.

When it is realized that the business interests of Illinois lose more than \$60,000,000 every year from preventable illness of employes and that proper popular health education is the surest way to reduce this loss, it can be readily understood that the National Baby Congress and Health Exposition, a great health educational enterprise, is an event of considerable importance to the business world, worthy of its best support.

THE EDUCATIONAL EXHIBITS

With the necessary preliminary work disposed of the Medical Committee will now devote its chief attentions to the development of the strictly educational exhibits.

All agencies, governmental and extra-governmental, whose activities in any way relate to public or individual health, child welfare, physical upbuilding, professional education (medical, nursing, dental and pharmaceutical) are cordially invited to file their applications for exhibit or demonstration space at once. Communications should be addressed to Dr. R. R. Ferguson, Chairman, Medical Committee of Supervision, National Baby Congress and Health Exposition, care American Exposition Palace, 666 Lake Shore Drive, Chicago.

The professional forces required for operation of the several important demonstrations, such as Baby Health Conference, the Health Youth Contest, and the various other examination features, will be drawn from the several professions, medical, dental and nursing, in all parts of the state. Invitation is extended to State and County Societies to actively participate.

REQUEST TO COUNTY SOCIETIES

County Medical Societies throughout Illinois are requested to immediately appoint a representative from each county society to serve with the General Medical Committee in the conduct of this exposition. It will be appreciated if the county secretaries will advise Dr. R. R. Ferguson of the local member so appointed, at the earliest date.

THERE SHOULD BE NO SIDE DOOR SHORT CUTS TO THE PRACTICE OF MEDICINE

WE ARE THE VICTIMS OF A PATERNALISTIC
REGIME THAT WILL EVENTUALLY ENSLAVE
AND BANKRUPT THE COUNTRY

We have too many laws, and too large a tax levy.

Living expense and taxes will be lowered as soon as hundreds of overpriced, interfering, recently adopted and unnecessary laws are done away with. America is mortally ill from a plague of laws. This evil is maintained at an annual cost per capita of \$91, and of about \$350 per family. One out of every twelve people in the United States, who are over sixteen years of age, and who are gainfully employed, is on the public payroll. In the last few years this ratio has risen from one out of every 1,000. There are 15,000,000 employees on the public payroll according to the estimates of census statisticians. This places an officeholder or "tax-consumer" on the backs of every two tax-producers. Exclusive of pensioners there are almost three million public servants whose pay comes from the ever increasing taxes. A large proportion of this number is engaged in the administration and execution of superfluous statutes.

A similar situation crushed France and produced the French revolution. It was the bane and damnation of Germany.

"Americans are now compelled by law to do, and prohibited by law from doing, more things than were the citizens in autocratic Europe before the war."

We are the victims of a paternalistic regime that will eventually enslave and bankrupt the country. The cost of *government* has become unbearable. Too many functions of local and of state governments are being controlled by hidden bureaus in Washington. There is more power exercised today in these bureaus by unknown "experts," political appointees of whispering propaganda, than by the courts themselves.

Centralization of government, bureaucracy, state subsidies and autocratic control are a poignant menace, and a fatal growth.

Bureaucracy is a curse wherever inaugurated. In the management of medical affairs it is fatal. Germany stood at the pinnacle of medical

achievement thirty years ago. Under bureaucratically administered state medicine, Germany has come to have the worst medical service in the world and the poorest care for the health of the people. It will be ruinous to the health and welfare of the United States if this system is adopted in this country.

No doubt before the present legislature will be presented many bills, attempting to regulate incompetently the practice of medicine and needlessly to increase taxation. Many of these bills will provide for the licensing to practice medicine, of uneducated and improperly equipped men and women.

We ask no especial favors for doctors, but we believe in a single standard of education and a thorough professional training before a man or woman can be licensed to practice the healing art or to diagnose disease.

Persons who seek a license to treat human ailment in the State of Illinois should know how to make a diagnosis of disease which is essential for the conservation of the public health.

There should be no side door short cuts to the practice of the treatment of disease in this State.

THE CHILD LABOR AMENDMENT FROM A REAL AMERICAN VIEWPOINT

RESOLUTION ADOPTED BY THE BOARD OF DIRECTORS OF THE HAMILTON CLUB OF CHICAGO,
JANUARY 26, 1925

WHEREAS, The Proposed Child Labor Amendment provides "That Congress shall have the power to limit, regulate and prohibit the labor of persons under eighteen years of age," and

WHEREAS, Such an amendment would vest in Congress the right to standardize employment and education of children and give the Federal Government the power to prohibit or limit to any degree that it might see fit, the care, culture, education and employment of children, and in effect, to nationalize all children under eighteen years of age, and

WHEREAS, It is the experience of the American people that Congress fully exercises all powers vested in it by the Constitution, and at times attempts even to go beyond such powers, and

WHEREAS, The use of the catchy expression,

"Child Labor" amendment, and the humanitarian features connected therewith, have served to create sentiment and excite the sympathy of certain social welfare groups, and other well disposed people, who have thus unwittingly permitted themselves to be used by the enemies of the Government to aid and abet the passage of this bad measure, and

WHEREAS, Forty-six out of forty-eight states of the Union now have child labor laws which, with only a few exceptions, are being satisfactorily enforced, and

WHEREAS, The exploitation of child labor has been greatly minimized within the United States, in recent years, and

WHEREAS, The chief argument of the proponents of the measure is that all the states have not succeeded in correcting all the abuses against children, and

WHEREAS, The same reasoning would require the Federal Government to take over the administration of the entire Criminal Code, because of the fact that murder, robbery, arson and other crimes have not been entirely eliminated by the State Governments and the local authorities, and

WHEREAS, The Supreme Courts have always upheld proper and just legislation concerning child labor in the various states, and

WHEREAS, The states, in which plenary police power resides, have, for the most part, been diligent and progressive in regulating the employment of children, and

WHEREAS, The proposal to take away from the states and confer on the National Government those rights and powers specifically reserved to the states in the Constitution would be revolutionary and would change the principles on which the Government is founded, and

WHEREAS, All persons of socialistic, communistic and bolshevistic tendencies are strongly in favor of ratification of said amendment by the states, and

WHEREAS, On September 1, 1916, Congress passed a child labor law, intended to prevent transportation in interstate commerce of the products of children's toil, and the Supreme Court, June 3, 1918, held the law unconstitutional on the ground that the power of Congress to regulate interstate commerce could not be

used that way. Five of the justices so held; four dissented, and

WHEREAS, February 24, 1919, Congress passed another child labor law and this time Congress attempted to put a special tax on those mills, mines and quarries that employed children, and the Supreme Court, May 15, 1922, held that this was an improper use by Congress of the taxing power, and

WHEREAS, An amendment was submitted and passed through Congress, June 2 of this year, reading as follows:

"Section 1. The Congress shall have power to limit, regulate and prohibit the labor of persons under eighteen years of age.

"Section 2. The power of the several states is unimpaired by this article except that the operation of state laws shall be suspended to the extent necessary to give effect to legislation enacted by the Congress," and

WHEREAS, Thirty-six states already prohibit the employment of children under fourteen years of age—even in vacation periods, and

WHEREAS, Six states already prohibit the employment of children up to fifteen years of age, and

WHEREAS, Two states, Ohio and Montana, prohibit the employment of children up to sixteen years of age, and

WHEREAS, Such a Federal amendment would cripple the economic independence of poor but self respecting families and clothe Congress with power to cross state lines and invade the privacy of the home—and regulate the intimate details of family life—something never intended by the authors of the Constitution, and

WHEREAS, Such an amendment would impose idleness on a large percentage of our self supporting population and those having others dependent upon them, and would render them potential criminals, and

WHEREAS, It would abrogate state Constitutions and suspend state laws whenever they conflict with any freak legislation with relation to employment any future Congress might enact, and

WHEREAS, It would establish arbitrary rules and regulations, applicable alike to all persons under eighteen years of age, irrespective of whether married or single, and regardless of the varying industrial, occupational and agri-

cultural conditions, and the diversity of schools and education advantages, and

WHEREAS, No actual necessity exists for such an amendment; it has not been shown that state legislatures are ineffective or unable to protect the rights of children; the care, nurture and control of children are properly first under the parents, then the local authorities, then the states and lastly the Federal Government, and

WHEREAS, It is a further attempt toward centralization of all power in the Federal Government. It would create countless bureaus, an army of office holders and regulators to inquire into and spy upon the family life of our citizens and create a bureaucracy of the most dangerous and hateful character, at an increased expense that would impose an intolerable burden upon the taxpayers, and

WHEREAS, Such an amendment would shatter our ideal of Republican, representative government and overturn our well settled and well defined conception of the relation of the citizens to the state and the state to the Federal Government, and

WHEREAS, It is an insidious encroachment upon the rights, and a surrender of the liberties of the people, and is the entering wedge for the establishment of a paternalistic central government.

Now, THEREFORE, *BE IT RESOLVED*: That, we, the Board of Directors of the Hamilton Club of Chicago, for the forgoing reasons are unalterably opposed to the so-called child labor amendment, and we hereby pledge ourselves to use every honorable effort to educate the people up to the dangers that lurk therein and to prevent its ratification by three-fourths of the states, and to accomplish its defeat.

THE CHILD BELONGS TO THE STATE.— BOLSHEVISM, COMMUNISM AND THE CHILD LABOR AMENDMENT

NOTE: Much has been said recently of the revolutionary element backing the Child Labor Amendment. That it is sponsored and supported by every red and communist in the United States is not questioned by people who have made a study of the subject. As confirmatory of the above statement we quote below an editorial from

the January, 1925, issue of the *Workers Monthly*, same being a consolidation of the *Labor Herald*, *Liberator* and *Soviet Russia Pictorial*.

This issue contains an article by William Z. Foster, also an article lauding Lenin, the leader and comrade. The front page portrays the red flag of Russia. In our opinion it represents the reddest of the reds. The following is the editorial:

FIGHT AGAINST CHILD LABOR

Every militant and progressive unionist, and every revolutionary worker, will join in the demand for the ratification of the child-labor amendment to the constitution. But there should be no illusions about this amendment. It will not protect the children of the workers. In the first place, it only gives power to Congress to pass legislation; it remains for such legislation to be forced through the legislative bodies by the pressure of working-class demands. Secondly, the prohibition of child labor, unless it is accompanied by governmental maintenance of the children, is absolutely ineffective.

It is only when the working class has itself taken over the political power, when the capitalist dictatorship has been overthrown by the dictatorship of the working class, that child labor and other evils afflicting the toiling masses can be abolished. What will happen under a proletarian regime is strikingly illustrated by the story in this issue, by Anna Louise Strong, formerly of Seattle and now in Russia. Anna Louise Strong tells about the one spot on the globe where the life-problems of the working class are being solved in a comprehensive manner. *It is only when the workers of the United States have similar power to control, through their own government of workers' councils, the social and economic life of the country that child labor will cease its destructive work.*

When capitalism remains, legislation on the child labor question will only give such slight relief as the workers force through by their political and economic power, by demands and demonstrations. And such pressure upon the capitalist government, in order to have any effect whatever, must be given point and substance by demands for governmental maintenance of all children of school age, such maintenance to be paid for by special taxes upon large incomes. The rich, who appropriate the wealth produced by the working class must be made to disgorge a part of it for this purpose, as one of the first steps towards making them disgorge all their ill-gotten gains to make way for the new system of society, wherein the working class will rule.

ILLINOIS' DUTY IN MEDICAL EDUCATION

The prime object of the Medical Schools of Illinois should be to educate young men and women to become practitioners of medicine for the people of the State of Illinois.

It is understood that the control of the College of

Medicine of our University has fallen into the hands of non-medical men whose education and training have not taught them the art of medicine.

The training given and contemplated by these men has failed and will fail to graduate doctors willing to practice in the rural districts of the State.

Dr. Harvey Cushing, Professor of Surgery at Harvard University, quotes Leonardo as writing in his notebook, "The supreme misfortune is when theory outstrips performance," and says that Roland, the research physicist, when asked what he did with his undergraduate students, said, "I neglect them." Writing on medical education, Dr. Cushing says, "There was a time a generation ago when from the beginning of their course students came under the influence of teachers whose point of view was colored by the fact that they, at the same time, were engaged in the practice of their profession. We have now gotten away from that—gone back to the standard of the two-year course. This is excellent for the rare and superior students who look forward to a pure science career, but we may have a good many doubts about the advantage to the others, who represent 95 per cent of the class. Any modifications of our accepted curriculum will in the long run only be worth while if there are the right people to carry it through and if the principle is adhered to of having the more experienced clinical teachers the ones first to meet the students." (J. A. M. A., 82-841, Mar. 15, 1924.)

Dr. Frank Billings, Ex-President of the American Medical Association and Dean of Rush Medical College, of Chicago, says, "Specialism in the teaching of and the practice of medicine has been permitted to warp our judgment and to divert us from the proper course to pursue in the attempt to educated and train the student of medicine. There is not a sufficient number of efficiently trained general practitioners to meet the public need. Therefore the chief product of the medical school should be the graduation of resourceful, broadly educated and well trained practitioners of medicine." (Virginia Med. Monthly, Vol. 48, p. 40, Apr., 1921.)

Arthur Dean Bevan, Ex-President of the American Medical Association and Professor of Surgery of Rush Medical College, of Chicago, says, "The well qualified general practitioner can take care of 95 per cent of the patients in his community. The specific purpose of the undergraduate medical course is to train general practitioners properly." (J. A. M. A., Vol. 80, p. 1187, 4-28-23.)

J. A. Weatherspoon, Professor of Medicine of Vanderbilt University, Nashville, Tenn., says, "Our system of education is training men in such a way that they could not practice efficiently in the rural districts where they are most needed if they desire to do so. This is not only a menace to the people, but also threatens the system on which the blame falls. The clinician is the man, above all, who knows where the weak places in medicine are. He knows the real problems and if allowed to work jointly in the schools can be of untold service in directing the attention of research workers to fruitful fields. In 1904 there were

enrolled in medical schools 28,142 students; in 1922, 16,140 (showing a decrease of 12,002.)"

Dr. N. P. Caldwell, Secretary of the Council on Medical Education of the A. M. A., says, "It is true that a scarcity of physicians exists in the rural districts, and that this scarcity is becoming more pronounced is evident."

Dr. Lyman Wilbur, Ex-President of the American Medical Association and President of Stanford University, of California, says, "There has been by one process of another a limitation of medical students which has almost reached the danger line of providing too few trained and skillful men for the service of the public. Make the graduate a general practitioner, not an expert in any particular field." (Calif. State J. Med., Vol. 20-218, July, 1922.)

Dr. Louis B. Wilson, Director of Mayo Foundation, Rochester, Minn., says, "We are not yet ready to depart from the time-honored theory that the function of the undergraduate school is the preparation of general practitioners." (Southern Med. Jour., Vol. 17-707, Sept., 1924.)

William Allen Pusey, President of the American Medical Association, of Chicago, says, "The greatest problem of all is the old homely one of treating men that are sick or injured. Sickness and injury will inevitably remain the lot of man. As long as this is true, there will be need of the personal physician to take care of the individual patient. For this service thousands of physicians will be needed—these are the men on the firing line. The battle for the relief of suffering depends on them. To foster the competence of these men is the greatest social responsibility of medicine." (J. A. M. A., Vol. 83, No. 24, June 14, 1924.)

President Kinley of the University of Illinois, a few weeks ago met the students of the medical college, about 460 in all, and it is reported that he asked them how many intended to become general practitioners of medicine. Thirty raised their hands and one of the thirty answered, "We are all taught to eventually be specialists." The President then asked how many were reasonably well satisfied with the training they were getting at the college. *Less than thirty raised their hands.*

It is understood that the reason for this is that the idea has been so inculcated in the minds of the students that in order to practice medicine a doctor must have at his disposal, not only complete laboratory and hospital facilities, but also research facilities.

Eventually that vitally important group of citizens living in rural districts will succeed in demanding through the legislatures that they have well trained physicians from their State Medical School if they are to support that institution.

There is need of greater registration in the College of Medicine, since it is understood that about 100 desirable applicants were refused admission or put on the waiting list last year.

The removal of the first two years of medical education to Urbana would provide facilities for about

double the number of students in the third and fourth years.

It is understood that the first two years of medical education now being given in Chicago could be combined with the two years pre-medic work now being given at Urbana at much less expense to the taxpayers. Clinical research should be conducted in the clinical department of the medical college, in contradistinction to the fundamental department, by a medical man in each clinical department, who is trained in research work, and who is on full time salary and is assisted by fellow and hospital residents who are graduates of medicine, and the clinical staff should consist of and be directed by graduates in medicine, licensed to practice.

The University of Wisconsin, the University of North Dakota, the University of South Dakota, the University of Missouri, Dartmouth College, and others providing two years in medical education, have these two years given in connection with the academic department of the University and the University of Chicago, the University of Colorado, Tulane University, the University of Oklahoma, and others providing four years in medical education, have the first two years of their medical work given in connection with the academic department of the university, and work of the third and fourth years is now being done by the clinical faculty, with practically no expense to the taxpayers.

It is understood that the cost at the present time, under non-medical management, of maintaining the work of the College of Medicine is exorbitant, and it has cost the taxpayers of the State during the fiscal year over \$300,000 for the education of the students of the College of Medicine.

It is plain to be seen that the present system of medical education is not conducive to the training of the general physician as is needed by the average community. To receive such needed practical training the student must be in closer contact with the teaching, experience and personality of men actively engaged in the practice of medicine and its various branches. Clinical years of medical education should be the years of intensification of practical medicine as it is known by practical experience. To this end the teaching of medicine should be divided into fundamental and clinical courses as separate entities. The fundamental years of medicine are academic, and should be regarded as comparable to other academic courses of university instruction.

Hence the work of the first and second years of the College of Medicine should be moved to Urbana, which would liberate buildings and equipment in Chicago and which would permit of the handling of twice as large classes in the clinical branches. This would make the greatest possible use of the physical equipment in Chicago, to the end that the taxpayers would be saved a large sum of money which it is now necessary to expend in maintaining a pre-medic department in Urbana and a fundamental department in Chicago.

The present extravagance in the first two years should be curtailed and the medical department run

on an economic basis, thereby saving the taxpayers of the State a large sum of money.

Also the curriculum of the College of Medicine should be so changed as to teach the students to become, first of all, general practitioners of medicine.

DON'T FORGET YOUR INCOME TAX—THE THE NEW PROVISIONS AND REGULA- TIONS AS THEY APPLY TO PHY- SICIANS ARE SET FORTH BELOW

A sharp revision of the normal tax rate and a modification of the surtax and provision for an "earned income" reduction constitute the most important changes made in the federal income tax law, which was amended by Congress last Spring.

Returns must be made to the Collector of Internal Revenue of the district in which the individual affected resides before March 15, 1925.

Responsibility for making these returns is vested with the individual. Blank forms are mailed to all known persons who have previously made returns. Failure to receive such forms, however, will not be accepted as an excuse for failure to file within the time specified by the law.

Under regulations effective last year, all persons deriving incomes from a business or profession, or both, are required to file their return upon Form 1040 (the large form). The small form, or 1040A, is for persons who secure their incomes from wages, salaries or interest alone and where the gross amount is less than \$5,000. The large form, or 1040, is also used by persons reporting an income of \$5,000 or over, regardless of the nature of its source.

The large form, or 1040, has been mailed to all Illinois physicians by the Collectors of Internal Revenue. If such blank is not received, apply to the Collector of Internal Revenue of the district in which you reside.

NEW RATES

The Normal Tax Rates: First \$4,000 in excess of credits, *two per cent.*; next \$4,000, *four per cent.*; and the remainder of net income, *six per cent.*

The Surtax Rates: Surtax is computed upon net income before personal exemption dividends and taxable liberty bond interest is deducted. The surtax is not applicable to net incomes of less than \$10,000.00 and upon net income in excess of that amount, the tax is levied on a graduated scale. A partial list of surtax rates is shown below:

	Rate of Tax	Tax
Net incomes up to \$10,000.00.....		None
In excess of \$10,000.00 and not in excess of \$14,000.00.....	1%	\$ 40.00
In excess of \$14,000.00 and not in excess of \$16,000.00.....	2%	80.00
In excess of \$16,000.00 and not in excess of \$18,000.00.....	3%	140.00
In excess of \$18,000.00 and not in excess of \$20,000.00.....	4%	220.00

For example, a person having a net income of \$11,500.00 will be required to pay a 1% surtax on that amount of income in excess of \$10,000.00 or 1% on \$1,500.00, a surtax of \$15.00. A person whose net in-

come was \$14,800.00 would compute his surtax as 1% on the first \$1,000.00 in excess of \$10,000.00 or \$10.00 plus 2% on net income in excess of \$14,000.00, that is 2% on \$800.00, \$16.00; a total of \$56.00 surtax.

Liability to File. If married, a return should be filed if the net income was \$2,500 or over. If single, a return should be filed if the net income was \$1,000 or over. If the *Gross Income* was \$5,000 or over, a return is required whether married or single, and regardless of the net amount left over after legitimate expenses are deducted.

Liability to file a return is contingent upon the amount of net income, and not upon a net income with personal exemptions deducted. In other words, if the net income was \$1,000 or \$2,500, single or married respectively, and personal exemptions reduce these amounts, individuals *will not be required* to pay a tax, but *must file a return*.

The Internal Revenue authorities consider a person married on December 31, 1924, as being eligible to the marital exemptions.

Personal Exemptions Allowed. If married and living with wife, or the head of a family for the entire year an exemption of \$2,500 is permitted.

If single, and not the head of a family, the personal exemption is \$1,000. An additional \$400 for each person, other than husband or wife, dependent upon and receiving support from you, is allowed, provided the dependent is under 18 years of age, or incapable of support because of mental or physical condition.

In the case of a change in marital status during the year, the exemptions of \$2,500 and \$1,000 shall be prorated over the period of married and single state.

Office Rentals. If a physician pays rent to another person for office space, he is permitted to deduct the amount from his gross income. If he owns his home and maintains an office in it, he cannot claim a deduction for office rent.

Automobile. The cost of repair and upkeep of an automobile used in professional visits may be deducted. The salary of a chauffeur, if most of his time is spent in driving to professional calls, may also be deducted. Sums spent for taxi hire, car fares, etc., while on professional calls, may be deducted. The basic cost of a business automobile may be depreciated.

However, the excise, or "War Tax" paid on the purchase of a new automobile is not deductible, for the reason that this tax is assessed against the manufacturer, who passes it on to the purchaser as a part of the cost of the machine. The original cost of a business automobile, however, may be depreciated. To arrive at original cost of a business automobile take the list price of car, f. o. b. factory, which is the basis of deduction, but divided over a period of years. In other words, if the list price of an automobile is \$2,000 and its estimated period of usefulness is five years, \$400 or 20 per cent. of list price, f. o. b., may be deducted each year for 5 years.

Assistants. Deductions are permitted for the salary of a nurse, laboratory assistant, stenographer or clerical worker in the office so long as the duties of these are in connection with the physician's professional work. Wages paid to maids taking care of the office, answer-

ing the telephones are also deductible, as are any funds paid to employes for services rendered in connection with practice, or care and treatment of patients.

Medicines, Instruments, Supplies. Medicines used in the office to treat patients, bandaging, laboratory materials and all other supplies necessary to operate a physician's office may be deducted. Upon surgical instruments, one-fifth of the purchase price may be deducted annually for five years under depreciation account.

General Office Expense. Cost of all telephones used in the office is exempt and may be deducted. Expenditures for heat, light and water for the office may be deducted. An annual depreciation of 10 per cent. of the cost of office furnishings and fixtures may be deducted.

Library. Most physicians have a more or less extensive library. Courts have held that medical books during the course of ten years become out of date. For this reason, a 10 per cent. depreciation may be deducted annually.

Taxes, Licenses. Any taxes paid for materials required in professional work are exempt. All licenses which the physician is required to take out, may be taken off the gross income reported. This includes the license to prescribe or use alcohol, narcotic tax, automobile license, local occupational taxes, etc.

Professional Dues. Dues paid to professional associations to which, in the interest of his business or profession, he belongs, are exempt and may be deducted. Also subscriptions to all medical journals or scientific publications are exempt. However, the Internal Revenue Collector has announced that expenses involved in attending the annual meetings of professional societies *are not a deductible item*.

When to Deduct Debts. If the physician's books are kept according to the "Cash Receipts and Disbursements" system, he may not charge off any unpaid debts because "if his books are kept according to this system, he is not only reporting as gross income those accounts which have proved to be good and therefore bad accounts cannot be deducted because they have already been excluded."

If the books are kept upon an "accrual basis" (that is if the basis of expense actually incurred and payable even though not yet paid, or income earned although not yet collected), it is permitted to charge off on the income tax blank all debts which have been definitely ascertained to be worthless during the fiscal year covered by the report.

In the same way, the physician is permitted to claim deductions for all other expenses within the scope of his profession, and the amount of his tax is determined on the *net income* which remains after all these items have been deducted.

Earned Income. For several years students of income taxation have contended that income derived from the personal endeavor of a tax payer should not be taxed at as great a rate as is income derived from other sources. This fact is for the first time recognized in the new law, which provides that the income shall be first computed in the usual way and then it shall be recomputed on the earned income as if that income were the entire income.

The term "Earned Income" means wages, salaries, professional fees, or compensation for services.

The first \$5,000.00 of net income is considered earned income, no matter from what source derived. The 20% limitation placed on net income derived from a business where both capital and personal service are material income producing factors, is not applicable to physicians whose income is held to be directly attributable to their rendition of personal service. However, in no case may the earned income be considered to be more than \$10,000.00.

It is anticipated that the earned income credit provision of the law will create a great amount of confusion in the computation of tax and for the benefit of our readers an example applicable to the income of a physician is given below:

Net income from practice.....	\$ 8,000.00
Net income from rents.....	500.00
Net income from sale of property.....	5,000.00

Total net income	\$13,500.00
Taxpayer married, with two dependents under 18 years of age.	

COMPUTATION

Net income	\$13,500.00
Marital exemption, \$2,500; dependent exemption, \$800	3,300.00

Subject to normal tax.....	\$10,200.00
First \$4,000.00 subject to normal 2% tax.....	4,000.00

	\$ 6,200.00
Second \$4,000.00 subject to normal 4% tax.....	4,000.00

Remainder subject to normal 6% tax.....	\$ 2,200.00
Normal 2% tax	80.00
Normal 4% tax	160.00
Normal 6% tax	132.00
Surtax 1% on net income in excess of \$10,000.00....	35.00

	\$ 407.00
Earned income credit (see computation below).....	27.00

Total tax	\$ 380.00
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COMPUTATION OF EARNED INCOME CREDIT

Earned income (income from practice).....	\$ 8,000.00
Exemption	3,300.00

Subject to normal tax.....	\$ 4,700.00
First \$4,000.00 subject to normal 2% tax.....	4,000.00
Remainder subject to normal 4% tax.....	700.00

Normal 2% tax	\$ 80.00
Normal 4% tax	28.00

Total tax on earned income.....	\$ 108.00
Earned income credit 1/4 of tax on earned income....	27.00

As mentioned in the first paragraph of this article, the new income tax law has made a sharp division downward in the income tax.

ANNOUNCEMENT

The Ninth Annual Clinical Session of the American Congress on Internal Medicine will be held in Washington, D. C., March 9-14, 1925.

Washington clinicians and investigators of attainment will devote the entire session to amphitheatre and group clinics, ward "rounds," laboratory conferences, lectures, demonstrations of special apparatus and methods, and the exhibition of unusual scientific collections. Civilian and governmental services are united in the aim to make the week useful and memorable.

Practitioners and laboratory workers interested in the progress of scientific, clinical and research medicine are invited to take advantage of the opportunities afforded by this session.

Address inquiries to the Secretary-General.

WM. GERRY MORGAN, Pres.,
Washington, D. C.

FRANK SMITHIES, Sec'y-Gen'l.,
1002 N. Dearborn St.,
Chicago, Ill.

CONSERVATISM IN DEALING WITH PELVIC INFECTIONS

Dr. Thomas E. Sellers, in the New Orleans Medical and Surgical Journal, March, 1924, says:

The high mortality and dreadful morbidity of pelvic infection is a well known subject. About one-third of gynecology deals with pelvic infection. The records of Charity Hospital show 1,207 cases of pelvic infection out of 3,667 gynecological cases handled in 1921 and 1922. On account of the frequency of pelvic infection I feel that this subject cannot be too often discussed, especially the conservative treatment.

There are three outstanding points in the conservative treatment of pelvic infection.

1. Avoid an abdominal section by rest treatment and vaginal drainage.
2. Conserve tube and ovary (if operated) for reproductive purposes.
3. Conserve as much ovarian tissue as possible for its internal secretion.

GOT HIS GUN OFF

A red-headed Irish boy once applied for a position in a messenger office. The manager, after hiring him, sent him on an errand in one of the most fashionable districts. Half an hour later the manager was called to the 'phone and the following conversation took place:

"Have you a red-headed boy working for you?"

"Yes."

"Well, this is the janitor at the Oakland Apartments, where your boy came to deliver a message. He insisted on coming in the front way and was so persistent that I was forced to draw a gun."

"Horrors! You didn't shoot him, did you?"

"No, but I want my gun back."

THE GHOSTS THAT HAUNT US

It isn't the thing you do, dear,

It's the thing you leave undone,

Which gives you a bit of heartache,

At the setting of the sun.

The tender word forgotten,

The letter you did not write,

The flowers you might have sent, dear,

Are your haunting ghosts tonight.

—Margaret E. Sangster.

Original Articles

MESENTERIC CYSTS*

CHAS. E. HUMISTON, M. D., AND EUGENE C.

PIETTE, M. D.

CHICAGO

Since the 16th century, when a Florentinian anatomist, Benivieni,¹ first described mesenteric cysts as "anatomical curiosities" many papers have been published on this subject and about 300 cases reported. The questions concerning the histogenesis and histological structure are now resolved, nevertheless a clinical diagnosis has been made in only a very few cases. We believe the clinical diagnosis can be made more frequently if the surgeons when diagnosing an "abdominal tumor" will keep in mind the possibility of a mesenteric cyst. The great majority of these cysts are located in the mesentery of the small intestine; only about 10% of them, namely, about 30 cases of those reported, were connected with the mesentery of the colon. Because of this fact we think that our case of cyst of the mesentery of the ascending colon presents some interest.

Mr. R. H. Q., 37 years of age, married and the father of three children, entered the West Suburban Hospital on December 24th, 1924, complaining of acute abdominal distress of 24 hours' duration. The pain was not extreme but the patient had been compelled to unfasten his belt on account of the tenderness to pressure. There had not been vomiting. The temperature was normal and the white blood count was not disturbed. Physical examination was negative except for the abdomen, which was tender throughout. The right side showed the greater tenderness and there was a distinct mass under the right rectus muscle on a level with the umbilicus.

The previous history revealed dyspeptic symptoms and a number of similar attacks which on two occasions had led to a diagnosis of appendicitis. The patient had never suffered any serious illness and while in college took a leading part in athletic games, notably baseball. A few months before his admission to the hospital there had been a thorough x-ray examination of the in-

testinal tract with negative findings. The history, together with the physical examination, appearing to justify the diagnosis of a surgical condition, operation was undertaken having for its objective the mass beneath the right rectus abdominis. Upon opening the abdomen it was at once apparent that the patient was not suffering from any acute inflammatory process. The appendix was not involved and all other viscera seemed normal. However, a bluish red mass 5 centimeters thick was protruding medially from beneath the ascending colon well up toward the hepatic flexure. A constricting ring marked the point where the mass had broken through. Further examination showed the tumor to be a multilocular cyst with thin walls and all subdivisions to be filled with blood. A portion of cyst wall was removed for microscopic examination. Drainage of the many subdivisions of the cyst not appearing feasible, the abdomen was closed without drainage. This treatment seemed advisable on account of the suspicion of malignancy. Fortunately this suspicion has proved unfounded.

By microscopical examination cystic content—a bloody fluid—consists of numerous red blood cells. This fluid does not clot spontaneously.

The walls of the cyst consist of fibrous and fat tissue which are covered with one sheet of flat endothelial cells. Foci of lymphocytic infiltration around the vessels; some eosinophiles are seen also.

Diagnosis: Multilocular mesenteric cyst of lymphatic origin (Lymphangioma multiloculare).

In the history of the study of mesenteric cyst, the date 1900, when Dowd² published his classification, is of great importance; he stated the period of histogenetic study. Since then the papers of Niosi,³ Colmers,⁴ Friend,⁵ Chomsky,⁶ Istomin,⁷ have been published on this subject and some new types of mesenteric cysts discovered; and now we have enough material to build up a rational classification of mesenteric cysts and solid tumors of the mesentery. Such attempts were made recently also by Forster⁸ and Carter.⁹ A very important point in this classification is the separation of false cysts, resulting from inflammation from the true neoplastic cysts.

(Classification of the mesenteric tumors:)¹⁰

*From the West Suburban Hospital, Oak Park, Ill.

INFLAMMATORY TISSUE TRUE TUMORS
GROWTH

Pseudocysts	Embryonic cysts
Retention	Lymphatic
Hemorrhagic	Coelomic
Lymphorrhagic	Urogenital
Softening of lymph glands	Intestinal (Enterokystomata)
Echinococci	Dermoids
Solid tumors	Cystic degeneration of solid benign and malignant tumors
Tuberculous lymphoma	Solid tumors
Amyloid tumors	Benign: fibroma, myoma, myxoma, lipoma, ganglioma, neuroma.
	Malignant: sarcoma, primary carcinoma (very rare)

The old names such as "Chyle," "Blood," etc., cyst are dropped out by modern investigators. The content of a cyst is usually not characteristic and can undergo various changes. Only the histological structure of the wall reveals the nature and origin of the cyst.

When a mesenteric cyst is found, the following points are of great importance:

Localization. Attention must be paid to the connection with the pancreas, gastrointestinal tract (enterokystomata, outer solid tumors of the intestinal walls) or retroperitoneal organs. Numerous adhesions arouse the suspicion of an inflammatory condition. Presence of a zone of distended lymphatics is characteristic of a retention lymphatic cyst. Thickness of the wall is of great importance; it is uniform in true cysts and irregular in the softened solid tumors.

Inner Lining. Smooth inner surface is seen in the urogenital and lymphatic cysts; mucous membrane is present in the enterokystomata; rough surface, covered with attached fibrin is typical of cystic softening of myoma or other solid tumors. Many cavities (multilocular cyst) were observed in the lymphangioma (as it is in our case), some retention cysts, urogenital cysts of ovarian cysts' type and also in the softened solid tumors. In the last case the septa are usually thick and rather rough.

Content is typical only in dermoids, echinococci and occasionally in the enterokystomata (meco-nium). Chemical analysis of the cystic fluid is of no importance, save in pancreatic cysts (ferments). Microscopical examination of the contained cellular elements is of some significance, permitting sometimes the conclusion about endothelial (lymphatic or coelomic cysts) or epithelial (other forms) nature of the cyst. When a complete enucleation of a cyst is impossible, microscopic examination of the lining is of great importance. As far as we know, not a single

case of malignant cyst with endothelial lining has been reported. In the presence of an epithelial lining, possibility of malignancy in a small percentage of cases must be considered. In Heyerowsky's case,¹¹ drainage of the cavity of a mesenteric cyst resulted in carcinomatous degeneration.

Fixation of the specimen must be performed as soon as possible after the operation because of post-mortem changes, desquamation and disintegration of the epithelial lining. By the microscopical examination particular attention must be paid to all thickenings of the wall. In these places some cellular formations can be found which reveal the point of origin of the tumor.

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THE DRAINAGE CANAL IS THE SANITARY
POLICE FOR MILLIONS OF
PEOPLETHIS EFFICIENT GUARDIAN OF PUBLIC
HEALTH MUST NOT SUFFER
CURTAILMENTHEALTH SUPERSEDES COMMERCE AS
A NATIONAL ASSET.

CHARLES J. WHALEN, M.D., LL.B.,
CHICAGO

The first sewers in the City of Chicago were built in 1856. These discharged either directly into the lake or into the Chicago River and then into the lake. The water supply was secured from intake cribs located one or two miles off shore. With rapid growth of population and the increasing discharge of sewage, either directly into the lake or indirectly by way of the Chicago River, there occurred serious pollution of the water supply. High typhoid fever death rates were prevalent. Epidemics of an explosive nature were frequent. Conditions became so alarming, that in 1886 the Drainage

and Water Supply Commission was organized by Act of the City Council, and was directed to report on the procedure necessary to eliminate the dangerous existing conditions. This Commission reported in 1887, recommending the construction of a canal to reverse the flow in the Chicago River across the drainage divide into the head waters of the Illinois River. The Sanitary District of Chicago was organized in 1889 under an Act of the General Assembly of the State of Illinois for the purpose of carrying out this recommendation. As originally organized, the District comprised an area of 185 square miles with an estimated population of 1,140,000, and has grown by subsequent annexations until at the present time it includes 437.39 square miles of territory, including all of Chicago and some forty-nine other incorporated cities and villages. The present population is estimated at 3,300,000.

The first work undertaken by the District was the construction of the Main Drainage Canal, beginning at the South Branch of the Chicago River at Robey Street and extending southwesterly to Lockport, a distance of 28 miles, where it discharged into the Des Plaines River through suitable controlling works. The main canal was opened in 1900. The flow of the Chicago River was reversed, and it has since continuously flowed away from the lake except at times when a low rate of discharge or the occurrence of an unusually severe storm in Chicago has turned the flow back into the lake. The North Shore Canal built from Wilmette to the North Branch of the Chicago River to provide flushing water through this branch, was opened in 1910. The last step in the scheme of river reversal was the Calumet Sag Canal, which was constructed to reverse the flow of the Calumet River in the southerly part of the District. This Canal was opened in 1922. All sewers formerly discharging into the lake were connected with these canals by large intercepting sewers.

The canal system and the construction of interceptors for removing the sewage from the lake is now substantially completed, and the District is actively engaged in the third stage of its programme,—the construction of sewage

treatment plants to supplement the diluting capacity of the canals.

At the present time two treatment plants are in operation,—one for the group of towns west of the city along the Des Plaines River, and the other for the Calumet region in the southerly part of the city. The first is of the so-called "activated sludge type," where the sewage is aerated for a period of several hours in contact with the sludge or solid matter derived from the sewage itself. After continued aeration nitrifying bacteria are developed which in combination with oxygen blown into the sewage in the air effect a substantially complete purification of the sewage. The Calumet plant is of the so-called "Imhoff tank type" and provides only for the removal of the suspended matter. In addition to these two plants, the District is now engaged in the construction of a large plant for the North Side, which will also be of the activated sludge type, and which, when completed, will care for the sewage of approximately 800,000 people. This plant is expected to be in operation in 1927. A population of about 1,000,000 will then be provided with facilities for complete or partial treatment of waste.

In 1921, an Act was passed by the General Assembly of Illinois, requiring the Sanitary District to construct treatment works, which beginning in 1925 would provide for treatment at the rate of 300,000 people per annum until the sewage of 60 per cent of the then population, or on a basis of approximately 1,800,000 people, had been provided with sewage treatment. A comprehensive programme for carrying out these requirements, and for supplementing the dilution capacity of the Canal has been prepared which contemplates the complete or partial treatment of practically all sewage originating within the District by the year 1945, at an estimated cost of \$125,000,000, in addition to the \$30,000,000 which has already been expended on treatment plants.

The best index of the effect of diverting the sewage from the lake by the construction of the Main Channel and its branches, together with the intercepting sewers for diverting the sewage to these canals, is afforded by the very marked reduction in the death rate from typhoid fever. The following table shows the annual typhoid fever mortality rates from 1867 to date:

ANNUAL TYPHOID FEVER MORTALITIES IN CHICAGO
PER 100,000 POPULATION

Years	Typhoid Fever Mortality	Per Cent of Total Mortality	Remarks
1867.....	73.3	3.45	
1868.....	79.3	3.34	
1869.....	65.3	2.82	
1870.....	87.4	3.66	
1871.....	61.0	2.92	
1872.....	142.6	5.16	
1873.....	71.6	2.85	
1874.....	53.4	2.63	
1875.....	51.7	2.62	
1876.....	41.2	1.96	
1877.....	37.0	1.98	
1878.....	33.4	1.97	
1879.....	42.3	2.41	
1880.....	34.0	1.63	
1881.....	105.2	4.03	
1882.....	82.4	3.49	
1883.....	62.2	3.12	
1884.....	56.2	2.84	
1885.....	74.6	3.98	
1886.....	68.6	3.53	
1887.....	50.3	2.48	
1888.....	46.7	2.38	
1889.....	48.4	2.67	
1890.....	91.6	4.61	
1891.....	173.8	7.20	
1892.....	124.1	5.68	
1893.....	53.5	2.47	
1894.....	37.5	2.06	
1895.....	37.9	2.14	
1896.....	52.6	3.23	
1897.....	29.3	2.00	
1898.....	40.8	2.79	
1899.....	27.2	1.73	
1900.....	19.8	1.35	Opening of Drainage Canal
1901.....	29.1	2.09	
1902.....	44.5	3.03	
1903.....	31.8	2.03	
1904.....	19.6	1.42	
1905.....	16.9	1.21	
1906.....	18.5	1.27	Opening South Side Interceptors
1907.....	18.2	1.16	Completion South Side Interceptors
1908.....	15.8	1.09	Opening North Side Interceptors
1909.....	12.6	0.87	
1910.....	13.7	0.90	Pasteurization of Milk
1911.....	10.7	0.74	Completion North Shore Interceptors
1912.....	7.6	0.51	Chlorination of Water started
1913.....	10.6	0.71	
1914.....	6.9	0.49	
1915.....	5.3	0.37	
1916.....	5.1	0.35	
1917.....	1.6	0.11	Complete chlorination of water
1918.....	1.4	0.08	
1919.....	1.2	0.09	Completion Evanston Interceptors
1920.....	1.1	0.09	
1921.....	1.1	0.09	Completion Calumet Interceptors
1922.....	1.1	0.10	Opening of Calumet-Sag Channel
1923.....	1.9	...	
1924.....	1.5	...	

The effect of the opening of the Drainage Canal and the diversion of sewage from the Lake is immediately apparent and while other factors, such as the pasteurization of milk and the chlorination of the water supply, have each had their effect in the reduction of water borne diseases, the most important factor is undoubtedly the diversion of sewage from the lake, which is the only feasible source of Chicago's water supply. The death rate from typhoid fever has now reached very small proportions, and today Chicago holds the record in this respect as compared with other cities located on the Great Lakes, as the following table will show :

TYPHOID FEVER DEATH RATE IN TEN-YEAR PERIOD
AVERAGES, PER 100,000 POPULATION

For Cities of over 100,000 Population in Great Lakes Region

Years Inclusive	Chicago	Milwaukee	Detroit	Cleveland	Buffalo	Rochester	Hamilton	Toronto
1870-79	62.2							
1880-89	62.9	33.1	*49.5	59.9	**40.9	33.5	†39.4	58.9
1890-99	66.8	25.4	31.4	42.6	33.8	27.4	21.4	41.9
1900-09	22.7	20.2	21.8	36.0	26.9	13.8	17.4	21.3
1910-19	6.4	14.7	14.8	8.9	14.0	7.2	9.3	12.6
1920-23	1.3	1.88	5.02	2.6	4.23	2.15	3.7	2.2

*1882-89 inclusive.
 **1881-89 inclusive.
 †1885-89 inclusive.

The Main Channel was designed for a capacity of 10,000 cubic feet per second. This flow was considered adequate for a population of 3,000,000 and was thought necessary to prevent reversal of flow of the Chicago River into the lake in times of storm. In a permit issued by the Secretary of War in 1901, however, the District was refused the right to withdraw more than 4,167 cubic feet per second from the lake. This amount was based originally on the requirements for safe navigation in the Chicago River, but the river has since been widened and deepened by the District to prevent objectionable currents even with a flow of 10,000 cubic feet per second. Nevertheless, the District has never succeeded in securing permission to increase this amount, and has been in litigation with the Government for some years in an endeavor to secure authority for withdrawing 10,000 cubic feet per second. This litigation was finally carried to the Supreme Court and has recently culminated in a decision handed down in December, 1924, in which the authority of the Secretary of War has been upheld, and the injunction to restrain the District from withdrawing more than 4,167 cubic feet per second has been sustained. The main points of contention involved in the withdrawal of water are two:

(1) That navigation is affected by reason of the permanent lowering of the lakes on account of the diversion at Chicago; and

(2) That water which might be used for power development at Niagara and on the St. Lawrence River is permanently diverted from the watershed of the Great Lakes.

The first objection is raised largely by the shipping interests in the neighboring states; the second, primarily by Canadians interested in the development of power.

The District has offered to pay the cost of

Regulating Works at the outlets of the Great Lakes that will more than restore the permanent lowering of something less than 6 inches due to the diversion of 10,000 cubic feet per second at Chicago, and feels that the time when this additional amount will be required for power development at Niagara and on the St. Lawrence River is many years in the future, as the amount diverted is not over 5 per cent of the total flow of water in the Niagara River.

The decision of the Supreme Court, in which it was held that diversion above 4,167 cubic feet per second is illegal, was based solely upon the legal right of the War Department to control shipping and harbor development in the Great Lakes. No consideration was given to aspects pertaining to public health. A broad viewpoint toward the situation must necessarily consider the importance of protecting the water supply of the Nation's second city. Twenty-eight of the most eminent engineers of the United States have concluded after thorough study of the situation that a reduced diversion will result in reversal of the river into the lake many times annually, with greatly increased bacterial counts in the raw water at the cribs. At present the unchlorinated water has a 37° agar count of from 50 to 400 per c. c. at the cribs and a bact. coli index of from 1.0 to 10.0 per 100 c. c. The chlorinated tap water has a 37° count of from 1 to 10 per c. c. and a bact. coli index of from 0.00 to 2.00 per 100 c. c.

The excellence of this supply may be contrasted with the quality of lake water at the intakes of several Indiana towns, Hammond, Whiting and East Chicago, near the mouth of the Calumet River and the sewage polluted canal at Indiana Harbor. In those places the raw water has 37° agar counts of from 10,000 to 20,000 per c. c., and bact. coli indices of from 5,000 to 13,000 per 100 c. c. The unfiltered but chlorinated tap water at Hammond frequently has agar counts as high as 200 per c. c. and bact. coli up to 2,000 per 100 c. c. A sewage-polluted water of this character is highly undesirable as a source of supply for the City of Chicago, even with filtration. The safety of the Chicago supply, dependent as it is upon the continuous diversion away from the lake of the sewage from 3,300,000 people, surely must have some weight as against a controversial half-foot

more or less of water levels in the Great Lakes. It is time the public health aspects of the situation should be given the careful consideration they deserve.

25 E. Washington St.

THE VISUALIZATION OF THE BILIARY TRACT. A NEW METHOD BY INTRAVENOUS INJECTIONS OF TETRABROM - PHENOL-PHTHALEIN.*

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CHICAGO.

Since the introduction of the x-ray, the constantly increasing applicability of its usefulness in the domain of diagnosis has progressed until now procedures are available by which most of the hollow viscera can be rendered opaque for visualization. Heretofore, however, this has not been true in the case of the gall bladder. The unsatisfactory appearance of this organ on the ordinary Roentgenological plate is well known to all of us. In the interpretation of such films wide scope is left to the imagination of the physician. If the faint outlines of an unusual shadow can be seen, the observer is left in doubt as to whether this is due to a Spigelian lobe of the liver, a Riedel's lobe, or possibly some opacity in the upper pole of the right kidney. In case these can be reasonably eliminated and the shadow definitely recognized as being that of the gall bladder, neither in a single plate nor in any ordinary series can Roentgenological information be gained as to whether the cystic duct is patent—and the mobility of the organ remains undetermined. There is an exception to be noted in the first instance, in that with long, continued cystic obstruction, a large hydropic viscus frequently develops, throwing a distinguishable shadow—but usually the fact of enlargement has already been determined from the history plus the customary procedures of inspections, palpation and percussion *before* the patient is sent to the Roentgenologist; so the confirmatory evidence revealed by his investigations, while interesting, is rarely of vital significance.

Again, it is frequently noted that vague shadows

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exist, due to the presence of calculi sufficiently mineralized to be visible—or precipitated bile in a half filled bladder may furnish a dubitable image, as apt to mislead as to guide, in a recognition of true conditions. So long as one is not certain whether the bladder is fixed by adhesions or freely mobile, operative planning by the surgeon is attended with mental reservations, nor can the internist so confidently undertake an attempt to relieve his patient without operative interference. May we regard any of the recent attempts to improve, Roentgenologically, upon the simple x-ray, plate as offering much help in this problem? Some aid is furnished by exposures made of the choleystic region before a medical biliary tract drainage, as compared with similar plates of the same region following this procedure, but only where conditions are exceptionally favorable. Procedures attended by no great measure of success are those involving attempts to inject oxygen into the colon, and to block off the small gut by expansile bougies or small balloons. Palefski's suggestion that the ordinary duodenal tube be swallowed, and the progress of the bulb watched fluoroscopically, the shape assumed by the tube giving some information in occasional instances of kinked or angulated bowel, as to the presence of such a complication, is interesting, but totally fails to aid us with information as to the condition of the gall bladder itself.

A method which might be as satisfactorily applied in revealing this organ, as are the various opaque solutions utilized in kidney and ureteral work, has long been sought, but until recently the difficulty of injecting the biliary passages through the common duct has proven insuperable. Nor, indeed, has that particular problem even now been solved in the form stated, but the fortress has been attacked from a different angle, and the blood stream, rather than the excretory channels, selected as the avenue of approach. For this brilliant concept, the profession is indebted to the ingenuity and perspicacity of Dr. Evarts A. Graham and Warren H. Cole, working at the Washington University Medical School and Barnes Hospital in St. Louis, who published their results in the *Journal A. M. A.*, Feb. 23, 1924, page 613. After experimenting with various substances they finally found the best results to arise from the use of a calcium salt of tetrabromphenolphthalein, which possesses the

requisite characteristic of excretion from the blood stream in the human body through the bile—of excretion practically only through that channel—of a possession, during this excretion of such a degree of opacity to the Roentgen rays as to render visible, by its presence, these organs so engaged in its removal, and of such moderate grade of toxicity as to render its employment possible. These writers, in their brief preliminary presentation of their method, content themselves with the tentative suggestion that it might possibly be found that the degree of visibility imparted to healthy biliary tracts would prove to be so much greater than that bestowed upon similar regions in individuals having disease of more or less intensity, as to furnish, in these domains, a quite definite degree of diagnostic information which would warrant the customary utilization of this procedure in the investigation of bile tract pathology. This seemed so rational a conclusion that we undertook, in our office, upon a number of patients the intravenous injection of this substance according to the technique of Dr. W. H. Cole, as follows:—

To 5 grammes of tetrabromphenolphthalein add 1 gramme calcium hydroxide. The distilled water to be used in dissolving it must be colder than room temperature and the mortar should be chilled. To the mixture in proportions named above add from time to time a few drops of water and grind thoroughly, then add 300 c.c. cold distilled water in three portions of 100 c.c. each. When the solution is finished it should have a purple violet color. Prepare 2 grammes of calcium lactate, dissolved in 5 c.c. of hot water. Cool this to room temperature and add to the dye solution. The finished product should now be sterilized 15 to 20 minutes. If a precipitate forms add sterile water or sterile normal salt solution and stir until the precipitate dissolves. This should now be cooled to approximately blood temperature, when it may be administered.

On the day of the injection the patient is to have neither breakfast nor lunch, and his supper is to be a meal of carbohydrate foods. The injection should be given between 8 and 9 in the morning, on an empty stomach. It should be administered by means of a salvarsan gravity apparatus, and from time to time the solution should be agitated by glass beads. The injection is to be allowed to flow into the vein very slowly. Should nausea develop, the injection may be interrupted for 15 to 20 minutes, during which time the needle should remain in the vein. A hypodermatic injection of codeine, in suitable doses, is very efficacious in relieving the nausea. It is permissible to consume as long as two hours in making the injection, but that period of time should not be

exceeded. The fluid should be maintained at blood temperature throughout the injection.

Following the injection the patient is to lie on the right side, well over on the belly, and roentgenological films should be taken to the number of 7, on the following schedule:

- No. 1—the day before the injection.
- No. 2—4 hours after the injection.
- No. 3—8 hours after the injection.
- No. 4—24 hours after the injection.
- No. 5—32 hours after the injection.
- No. 6—48 hours after the injection.
- No. 7—56 hours after the injection.

In order that you may judge for yourselves of the efficacy of this new compound, I will shortly exhibit a few of our slides with brief comments. Before doing this, however, we would suggest that modifying factors will be found to arise from the following considerations:—

1. In hepatic cirrhosis, the excretory power of the liver is abnormally sluggish, and this must be allowed for in drawing conclusions as to the diagnosis of gall bladder conditions based upon a delay in the appearance of the salt in sufficient concentration to cast a visible cholecystic shadow.

2. If the gall bladder is especially vigorous in its contractions the agent may be expelled so rapidly as to prevent a sufficient degree of collection, and the viscus hence remain invisible.

3. Much will depend upon the patency—the obstruction, or the alternate patency and obstruction—of the cystic duct. Apparently, in doubtful cases, a series of tests at short intervals may be desirable, provided it be found that there is no cumulative toxicity to be feared in human beings under such circumstances. So far as our rather brief experience may serve to elucidate this question, we have no suspicious results to report; none of our patients, under repeated injections, showed any notably untoward symptoms whatever.

4. Undoubtedly, the more nearly empty of ordinary bile the gall bladder can be made before new bile enters carrying the opaque salt, the better shadow will result. Hence a preliminary medical drainage of the biliary tract may prove to be very helpful in preparing the field for this new procedure.

Mrs. H.:

Chronic biliary tract infection with chronic interstitial pancreatitis—pancreatic deficiency and intestinal type indigestion; no definite operative indications. The clear outline of the secured shadow in all these plates strongly suggests a freely mobile, fairly normal organ. Our first clinical impression was to the effect that no operation was indicated here—and cer-

tainly the x-ray findings would not controvert this opinion, if the position taken by Drs. Graham and Cole be considered correct.

Miss W.:

Small ulcer of stomach just proximal to pylorus; infected gall bladder, non-operative. Again, in this case, we did not advise operation—nor did the shadow seem to indicate any necessity for surgical interference.

Mr. L.:

Spastic colitis, inactive duodenal ulcer; mild gall bladder infection. In the case of Mr. L., relief was secured without surgical interference—nor would the gall bladder shown here seem to urge this procedure. This case is interesting as showing the visualization of the biliary tract following a medical drainage with subsequent injection of the dye.

Mrs. S. H.:

Small gastric ulcer; mild gall bladder infection. These plates are of unusual interest in that the shadow shown on the reduced slide as now exhibited is much more clear and distinct than on the larger plates. Evidently the process of condensation from plate size to film size has served to accentuate formerly indistinct shadows—and the thought naturally suggests itself that vague plates may at times be improved in distinctness by photographic reduction. Otherwise the plates are those of a supposedly mildly infected gall bladder, where this test would suggest the advisability of a surgical exploration which has not yet been carried out. This patient is still in the hospital under observation.

J. B.:

Chronic facial eczema—infected gall bladder with enlarged lymph gland. These slides show an apparently fairly normal gall bladder. The patient is the small daughter of a prominent Illinois physician, whose father referred her to us on account of a severe, chronic, facial eczema of many years standing, which had been in the hands of competent dermatologists without more than temporary relief. In spite of the revelations of this test, we advised appendectomy and cholecystectomy, and these operations were performed last week. The gall bladder seemed quite normal in size and gross appearance, but the glands along the course of the cystic and common ducts were notably enlarged and hard. The immediate result upon her face has been most gratifying—the crusts and scales have disappeared as though melted away, leaving a skin almost normal in appearance save for myriads of fine wrinkles—since the epidermis has not yet adapted itself to the shrinking of the subcutaneous tissues. The operative findings confirmed the revelations of this test as to the size and shape of the gall bladder.

A. R.—Chronic colitis; infected gall bladder and biliary tract; old tuberculosis. In this case the relative dimness of the shadow would suggest that surgery might be beneficial, but the patient, presenting many healed tuberculosis lesions in lungs and intestines, has improved so greatly under medical treatment that he is satisfied to remain in his present

condition. At best, he would be rather a poor operative risk.

Mrs. Hk.—1. 2.

These two plates represent the findings in the case of the only patient in this series whose body came to autopsy. Entering the hospital deeply jaundiced, a diagnosis of calculous cholecystitis was made and operation advised. The injection of the dye for the performance of this test did not seem to impart any especially unfavorable tendency to the course of the disease—the steadily increasing jaundice continuing to deepen without accentuation. When consent for operation was finally secured, it only anticipated a lethal exitus by a few hours. The autopsy revealed an infected and ulcerated gall bladder in which a few stones seemed a relatively unimportant factor in the clinical picture.

SUMMARY

Drs. Graham and Cole suggest a novel procedure whereby a dye, in non-poisonous doses, injected into the venous blood, is shown to be excreted by the liver as a constituent of the bile. The drug possesses the property of rendering the biliary tract opaque to the x-ray, so that it is possible to secure pictures whereby the visibility of the entire biliary tract is markedly enhanced. They suggest that, in general, patients receiving this dye may be expected to exhibit shadows outlining the biliary tract in direct proportion to the extent to which this tract is free from disease. The less pathology, the clearer the picture. Our experience with this method would tend to confirm in all respects their published findings. We have seen no evidences of toxicity. The contentions of the original authors as to the enhancement of the gall bladder's visibility would seem to be borne out by our experience; and in cases that have come to operation or to autopsy, the findings when the body was opened have confirmed those previously suggested by this test.

We have had one experience which has very likely already occurred to the original authors, but which they have not, at least as yet, mentioned in their published work, namely that shadows of relatively slight intensity upon the Roentgenological plate will be accentuated and more clearly brought out in a small photographic reproduction of this plate of the size ordinarily utilized in the manufacture of lantern slides. It consequently seems to us that this may be an advantageous procedure at times, when dealing with extremely indistinct Roentgenological shadows.

DISCUSSION

DR. DENEEN, Bloomington, continuing discussion, said: I would like to ask Dr. Oleson if he gets any reactions from giving this drug. If he does, what they are, and what treatment he gives, and if there is any possible danger in giving this drug for diagnosis.

DR. RICHARD B. OLESON, Chicago, closing the discussion, said: In response to the two questions that have been asked the fluoroscopic appearance is practically that shown on the plate. It is more difficult to see the shadow on the fluoroscope.

Regarding the matter of the toxicity of the dye, it is undoubtedly toxic if the dose is excessive. I gave the technique of the preparation of the solution. That is about as strong as may be used. In some cases of nausea at the time of the injection we may have to interrupt the injection. One patient required a small dose of codeine. I think that was purely psychological, but at all events, the codeine was given and there was no further trouble.

THE MANAGEMENT OF THE TOXEMIAS OF PREGNANCY*

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By toxemia of pregnancy is meant an abnormal condition in pregnancy produced by toxins which circulate in the blood. What these toxins are and where they originate we do not know, although many theories have been propounded. By some, the origin of the toxins has been attributed to disturbed metabolism of the mother, the liver and kidneys especially being held responsible. By others the fetus, and in particular the placenta has been considered the origin of the toxins. Because we do not know what these toxins are and where they arise, our treatment can only be empirical.

For general purposes, the toxemias of pregnancy may be divided into two classes, namely, those occurring early and those occurring late in pregnancy. Of those which occur early in pregnancy only pernicious vomiting or hyperemesis gravidarum will be discussed in this paper. Of the late toxemias the treatment of pre-eclampsia and nephritic toxemia and eclampsia will be reviewed.

It is generally agreed that about 50 per cent. of pregnant women suffer from nausea and vom-

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iting between the fourth and twelfth weeks of pregnancy. Most of these women are only slightly inconvenienced by these symptoms; but there are a few in whom the nausea and vomiting produce disastrous results. The transition from the so-called normal amount of vomiting to that which we consider pernicious is usually gradual and it is often hard to sharply differentiate the normal from the abnormal. For the patients with a moderate amount of nausea and vomiting we usually recommend the following: In the morning before getting out of bed the patient should eat a few crackers, preferably without the addition of any fluids. She should then rest in bed for twenty to thirty minutes before getting up. During the day instead of eating three meals, she should eat six or seven small meals, consisting essentially of carbohydrates. Meats, fish, eggs, cheese, peas and beans should be eliminated from the diet. Water had better not be taken during meals but rather midway between meals. On this regime most patients improve. We seldom use drugs because we have not found that any help except through suggestion.

When the patient continues to vomit more and more despite treatment and suggestion and retains practically nothing taken by mouth, the condition approaches the pernicious type. If the patient complains of pain in the ribs (from vomiting), salivation and constipation, if the pulse becomes weak and rapid and the blood pressure falls, if the urine is dark in color, markedly decreased in amount and contains albumin, casts, diacetic acid and acetone, if the patient looks emaciated and her skin is pale and dry, if she becomes slightly jaundiced and especially if there is tenderness over the liver, we have an outspoken case of the pernicious vomiting of pregnancy. In the very advanced cases there may be low fever, delirium, stupor and coma. Occasionally the vomiting ceases and leads the physician to believe the patient is improving; but the other symptoms remain and the patient dies suddenly. The fetus usually remains alive in patients with pernicious vomiting. When a patient becomes very toxic the fetus may die and be aborted. In such cases the vomiting may cease immediately after the abortion.

In treating pernicious vomiting of pregnancy we must bear in mind that there may be four etiological factors for this condition; namely: nervous, reflex, gastric and toxemic. Before in-

stituting treatment we must make certain the patient is pregnant and this is sometimes difficult. A careful pelvic examination should be made to rule out any pelvic abnormality, such as retroflexion of the uterus, as a possible cause of the vomiting. If such a condition is found it should be corrected. A gastric or duodenal ulcer or perhaps a pathologic gall-bladder may be responsible for the vomiting. Occasionally pyelitis is a cause of pernicious vomiting. If no definite cause is found, the mental aspect of the patient must be considered in the treatment; for in most cases of pernicious vomiting there is a large nervous element. In nearly all advanced cases the toxemia is superimposed upon the nervous basis.

For the relatively mild cases of pernicious vomiting, attention to the diet as outlined above and to the bowels will help. The patient should not sleep in the same room with her husband for it is not infrequent that the husband is the cause of the vomiting. In severe cases the patient should be isolated, preferably in a hospital, and no visitors, not even the husband, should be permitted to see her. If possible, a capable nurse should be called in. The patient's room should be kept dark. Treatment consists in keeping the patient in bed, seeing that the bowels move daily, giving nothing by mouth for at least the first twenty-four hours and giving fluids containing five per cent. glucose, five per cent. sodium bicarbonate and sodium bromide per rectum. When the patient improves, dry food, such as toast, crackers, jelly, dry chops, etc., may be given. Water should be given not with meals but between meals. Upon further improvement a general diet may gradually be resumed.

Of great importance in the treatment of pernicious vomiting is suggestion; for as I said before, there is a nervous element in nearly all the cases. Medicinal therapy is of use chiefly because of its psychic effect. This holds true for corpus luteum as well as for most drugs. However, luminol is distinctly helpful. Painful treatment, such as giving salt solution under the breast with large, dull needles, helps considerably because of the pain it produces and the fear of a repetition of this procedure. In advanced cases we have had great success with the duodenal tube through which we feed the patient fluids, sodium bicarbonate, sugar, orange juice, milk, eggs and other foods. We also give laxatives and

sedatives through the tube. Since using the duodenal tube we have not had to interrupt pregnancy for pernicious vomiting of pregnancy. If, however, a patient should continue to grow worse despite the above treatment it is better to interrupt pregnancy early; for if performed late it might be of no use. It is far better to interfere too early than too late. If the pregnancy is very early, this can be done by a simple dilatation and curettement; but if advanced, it may be advisable to pack the cervix with gauze or place a tent in the cervix for twenty-four hours and after dilatation has occurred, empty the uterus. Occasionally a vaginal hysterotomy is the simplest procedure. One thing which must not be forgotten before interrupting pregnancy is consultation with another physician and consent in writing.

Of the late toxemias, we shall discuss those with and those without convulsions. The toxemias without convulsions are generally divided into the pre-eclamptic and the nephritic types; but it is usually impossible to differentiate these two unless one knows that the patient had a chronic nephritis previous to pregnancy or early in pregnancy.

The correct differentiation between the two types is usually made long after labor, at which time, if there is evidence of chronic nephritis we assume the toxemia had been of a nephritic type. However, when the toxemia exists, it matters not whether we are dealing with the pre-eclamptic or the nephritic type since the treatment is the same for both.

In a consideration of the toxemias of late pregnancy, prophylaxis is most essential. By this I mean proper prenatal care. The mortality from eclampsia varies between 15 and 25 per cent. and in this country alone between 4,000 and 5,000 women die every year from eclampsia. Nearly all these deaths are preventable. By careful observation of patients during pregnancy eclampsia can be eliminated almost entirely. Such observation includes taking the blood pressure and examining the urine at least every three weeks throughout pregnancy and paying attention to symptoms, such as headache, edema, marked constipation, diminished urinary output, epigastric pain, spots before the eyes, etc.

At the Chicago Lying-in Hospital and its dispensaries, of 40,000 patients, not one case of eclampsia developed among those who attended

our prenatal clinics regularly. Other clinics with smaller numbers of patients can perhaps show the same results. This means that eclampsia is almost absolutely preventable and it is the physician who can prevent this complication. Of course education of the public is most essential; for without the co-operation of the patients, little can be accomplished. Aside from the enormous loss of mothers there is a still greater loss of babies; for about one-half of the babies of eclamptic mothers die, even if the mothers survive. The fetal deaths are due to prematurity, the toxemia which affects the mother, asphyxia produced by the convulsions, drugs given the mother and injuries during birth, especially if instruments are used.

The actual treatment of all the toxemias is empiric because we do not know the etiology. When the patient's blood pressure rises and the urine contains albumin, with or without casts, and especially when there is edema, toxemia is present. The patient should be placed on a diet consisting essentially of starchy foods, eliminating nearly all proteins. She should be encouraged to drink plenty of water. The bowels must be kept open, the blood pressure should be taken and the urine examined at frequent intervals. If such symptoms as severe headache, vomiting, epigastric pain, spots before the eyes appear and especially if the blood pressure continues to rise and the amount of albumin in the urine increases, the condition should be considered grave. The patient should be kept in bed and in addition to a rigid diet, the bowels and kidneys should be stimulated to increase elimination. For the bowels it is best to give saline purgatives, especially if there is edema; but vegetable cathartics should be substituted occasionally. The kidneys are best stimulated by the introduction of large amounts of water by mouth, by rectum and hypodermically. If edema is marked, too much fluid should not be given. Fresh air is important and the patient should be encouraged to take deep breaths a number of times a day. If the patient does not improve under this treatment and the symptoms increase in severity it is best to empty the uterus. In doing this, that method should be chosen which will terminate the pregnancy quickest and with the least amount of injury to the mother. In multiparous women simple rupture of the membranes usually suffices; but a bag may have to be inserted into the uterus. In Primiparas

the insertion of gauze into the cervix or a bag into the lower uterine segment, will stimulate labor pains. In toxemic patients labor as a rule is rapid. As soon as there is sufficient dilatation to permit delivery of the baby without injury to the mother, labor should be terminated. Nearly all patients who suffer from toxemia without convulsions, improve immediately after the uterus is emptied if this is done early. If labor is terminated after the toxemia has progressed considerably, convulsions may occur after delivery.

When a patient has a convulsion she is to be considered critically ill. Usually other convulsions follow. If possible the patient should be in a hospital. In treating patients who have eclampsia, one of three lines of procedure may be followed. First, the uterus may be emptied immediately after the first convulsion. Second, one may give drugs to quiet the patient and not interfere with the pregnancy mechanically at all. Third, one may use sedative drugs and if there is no improvement, empty the uterus. The method of choice will depend upon the viability of the child, the surroundings, the condition of the cervix and the skill of the operator.

In a hospital the best treatment is that which empties the uterus quickly; but this must be done as soon after the first convulsion as possible. If one waits until the patient has had many convulsions, termination of pregnancy may not affect a cure. Furthermore, if the operation is performed early, many babies are saved which would otherwise be lost. For a primipara with a closed cervix and a viable child we perform a cesarean section, doing the low or cervical operation. We generally employ ether as the anesthetic and never use chloroform because it may produce fatty degeneration of the liver. Of late we have been doing cesarean sections under local anesthesia (novocain) with great success.

If the patient is at home the best treatment is the conservative one; but this line of treatment, of course, may also be employed in hospitals. The patient is given a quarter or a half grain of morphin hypodermically immediately after the first convulsion or when first seen. Two hours later 20 to 30 grains of chloral are given per rectum. Two hours after this another quarter of a grain of morphin is given hypodermically and this is followed two hours later by 20 to 30 grains of chloral per rectum. After this, 20 to 30 grains of chloral are given per rectum every few hours de-

pending upon the patient's condition. In addition to the use of drugs it is advisable to remove between 600 and 1000 c. c. of blood from the patient. The higher the blood pressure the more blood can be drawn off with safety. Too much blood should not be removed because if the patient goes into labor she may lose a large amount of blood at that time. There is, however, not much to fear from this because as a rule blood from eclamptic patients clots easily.

During convulsions it is essential that precautions be taken to protect the patient against injury. We always have a clothespin wrapped in a handkerchief near the patient's head so that it may be inserted between the teeth as soon as a convulsion appears imminent. This will prevent the tongue from being bitten. The patient should not be held down forcibly except to prevent her from falling out of bed or hurting herself otherwise. It is, of course, essential that some one watch the patient all the time. The patient should lie on her side if possible, to prevent aspiration of any vomitus or saliva which might lead to aspiration pneumonia. The room should be kept dark, fresh air should be admitted and noises prevented. We do not use hot packs to stimulate the skin because it depresses the patient and concentrates the toxins in the blood. We do not employ gastric lavage or colonic flushings because they are unnecessary and may irritate the patient and thus produce convulsions.

In any case, if convulsions continue to recur, the baby should be delivered when there is complete dilatation, by forceps if the head is engaged, otherwise by version and extraction. If the cervix is effaced and almost completely dilated the dilatation may be completed manually; but this must be done slowly. Then delivery can be accomplished with forceps or version depending upon engagement. If the cervix is closed and the baby is small, a bag may be employed to obtain dilatation, or a vaginal cesarean section performed.

During the delivery of a toxemic patient every precaution must be taken to guard against infection because toxemic patients are very prone to develop sepsis. While the baby is being born, the expulsion of feces gives trouble. This is usually due to the cathartics given to aid elimination and because of danger of contamination with feces during labor, it is wise to withhold purgatives until after delivery if one decides to termi-

ate pregnancy. If the patient bleeds moderately during delivery one need not hurry to check it, for the loss of blood will do good. As little anesthetic as possible should be used and as little sewing should be done as is necessary.

When the patient improves after delivery, water is given by mouth, and this is followed by a milk diet. The bladder must be watched to prevent over-distention and great care must be exercised to prevent infection. This applies particularly to the care of the perineum after bowel movements, voluntary as well as involuntary. The patient should not be permitted to nurse her baby until she has been fully conscious for three or four days and she should not be considered out of danger until after about two weeks; for convulsions may recur a number of days after delivery. The blood pressure and urine should be watched for many months after confinement and the patient should be advised to wait a few years before becoming pregnant again.

In summing up I should like to emphasize that severe grades of toxemia and especially eclampsia are nearly always preventable. To eliminate eclampsia, prophylaxis during pregnancy is necessary and for its success education of the public is essential. The layman must be given to understand that a labor case begins at the time of conception and that it is important for the pregnant woman to see a physician as soon as she knows she is pregnant. Once in the hands of a physician the responsibility rests largely upon the latter. It is his duty to properly instruct the woman and see that his orders are carried out. In the toxemias of pregnancy more than anywhere else in medicine is it true that prevention will almost entirely eliminate the necessity for cure. Prevention here lies in proper antenatal care.
426 East 51st St.

ECTOPIC PREGNANCY AND ACUTE APPENDICITIS*

MATHER PFEIFFENBERGER, M. D.,
ALTON, ILLINOIS

January 26, 1922, Mrs. O., aged 40½ years. No constitutional diseases in family. Past history, measles and scarlet fever in childhood; meningitis at 19 years of age. Has given birth

to two children, the elder being four weeks premature, and the younger being two weeks premature. No miscarriages. No venereal history, nor infection following confinements. Menstruation started at 18 years of age, irregular and always painful after birth of first child.

Eight years ago, three weeks after birth of first child, had an attack of appendicitis, refused operation at that time. Four years ago had another attack and for the last few years has never been free from pain in the right side. Attacks usually started by loss of appetite followed by nausea and pain which radiated toward the left side. Constipation has always been marked.

Examination of chest negative.

Present illness: Prior to the onset, menstruation had been regular, scant and painful; patient had not noticed usual signs of pregnancy. Menstruation started December 12, stopping December 14. December 18 menstruation appeared again, lasting one and one-half days. December 25 flowed one day. December 29 pain became marked, patient complained of weakness and went to bed, shortly after suffering intense pain and on going to bathroom became nauseated, weak and faint. She applied heat and took a cathartic obtaining some relief. January 2 sat up for a while. January 6 had a recurrence with intense pain which lasted all night with some pain on the left side. No appetite, tenderness over the whole abdomen, the next day she was easier. For a week following there was marked improvement. January 8 slight menstrual flow, which continued until January 14. Was examined by writer at this time and extrauterine pregnancy diagnosed but patient would not consent to operation. On January 26 she was sent to the hospital.

On examination at the hospital her temperature registered 99.8 degrees, respiration 24, pulse 90, blood count showed 12,600 white cells per cubic millimeter, urinalysis negative. Right rectus muscle was rigid and severe pain at Mc-Birney's point.

Bimanual examination revealed a soft cervix, a mass in the cul-de-sac behind the uterus and tenderness throughout the pelvis more acute on the right side. The breasts showed secretion present, the areola about the nipples was dark.

A diagnosis of acute appendicitis and ectopic

*Read before Section on Surgery, Illinois State Medical Society, Springfield, May 7, 1924.

pregnancy was made at this time and operation advised.

The patient was immediately prepared for operation, anesthetized with ether. Right rectus incision made, cecum located and appendix found adherent behind the uterus; the fimbriated extremities of both tubes were free, as were the ovaries. The omentum was adherent over the end of the appendix and mass in cul-de-sac. This was dissected loose, the cecum delivered with appendix. A slight hemorrhage occurred when the appendix were separated from the mass. The mesoappendix was ligated and cut, a purse string of linen placed around the base of the appendix, the stump crushed, ligated with catgut, amputated with cautery, invaginated, purse string tied, a Lembert suture placed over purse string and large bowel replaced in abdomen. The mass in the cul-de-sac was now lifted out with very little difficulty, which mass proved to be a sac containing a three months fetus to which the end of the appendix had been adherent. Hot saline sponges were applied to the cavity; all bleeding stopped. The wound was closed without drainage, the peritoneum and fascia were closed separately with catgut and the skin with subcuticular silver wire.

The patient made an uninterrupted recovery, being discharged from the hospital on February 8, or 13 days after after operation.

This unusual case interested the essayist enough to have the literature gone over and he found it rare enough to report the results of the investigation.

Appendicitis long ago became a commonplace of medical practice. Ectopic gestation, though by no means common, is still reported with sufficient frequency to warrant the editors of the *Index Medicus* gathering the special publications concerning it under a special section heading. The coincidence of acute appendicitis and extra-uterine pregnancy is sufficiently rare to justify giving it special attention when it comes under observation, and to attach considerable interest to a report of any such case.

The occurrence of this condition is probably much more frequent than the number of recorded instances would lead one to suppose. There are two reasons for this: one is that antemortem diagnosis of both appendicitis and ectopic gestation is a comparatively modern accomplishment,

so that we can hardly expect to find any literature concerning it before the commencement of the present century; the other that the diagnosis of acute abdominal conditions often offers great difficulty in differentiation, and the conditions found at laparotomy are often so confusing as to make the surgeon uncertain as to their etiology, and proper facilities for study not being at hand the careful examination of the pathological tissues is impossible.

There is another interesting aspect to the question, namely, the relation that the inflammatory process in the appendix bears to the existence of the tubal pregnancy. Inasmuch as we know that inflammation is set up in the appendix by some form of irritant, it is easy to reason that the rupture of an impregnated tube would provide this irritant, and that appendicitis might be expected to occur in the presence of a ruptured ectopic gestation. On the other hand, the existence of a diseased appendix might favor the occurrence of tubal pregnancy, as is explained by Hammond in discussing his case: "There is no doubt, therefore, in my mind, that a morbid change within the appendix, causing it to become adherent to the fimbriated extremity of the Fallopian tube and thereby arresting the function of transmission of the ovum through the tube to the uterus, was the cause of this extra-uterine fetation."

A careful examination of the literature for the past twenty-five years has resulted in the collection of but *ten* reported cases of coincident appendicitis and ectopic pregnancy. The rarity of such reports is perhaps reflected in the comment of Landan,⁶ who begins her article with "the following case is, to my knowledge, unique," although the year 1922 in which she made this statement saw the publication in the United States of one almost identical, and, as I have already mentioned, eight others had previously been published. A brief resume of these published cases may therefore not be without interest.

The first case we have been able to find is that of Black,² reported in June, 1897. His patient was aged 22, and when first seen had been ill a week with what had been diagnosed as "unusually painful menstruation," for which morphin had been administered. There was a temporary lessening of the pain but the temperature continued high for four days, at the end of which time

there was an attack of most severe pain with all the symptoms of collapse. Laparotomy was performed under the diagnosis of ruptured gangrenous appendix. On opening the abdomen the hemorrhage revealed quickly made clear the true cause of the sudden collapse, but on removal of the ruptured tube and its contents, "the appendix came into view and showed unmistakable inflammation."

In November, 1897, L. J. Hammond⁴ reported to the Philadelphia Obstetrical Society the case of a mulatto girl, aged 22, who entered the hospital because of constantly more frequent recurring attacks of colicky pain with increasing tenderness over the inguinal region. The temperature was ranging between 100° and 103°. Soon after entrance there was an attack which gave every classic evidence of acute appendicitis. The woman was prepared for appendectomy, but before the arrival of the surgeon, the temperature suddenly declined below normal and there was an appearance of profound shock. The abdominal cavity being opened it was necessary to mop out an abundant hemorrhage, after which came the discovery of a "large ruptured tube with the vermiform appendix firmly adherent to the fimbriated extremity of the Fallopian tube and both bound down to the abdominal parietes."

The operative procedure was much complicated by the necessity of removing numerous "islands of placental tissue, united to each other by fibrous bands" which were scattered over the posterior portion of the body of the uterus and the peritoneal surface of the rectum. As in the preceding case, recovery was uneventful and complete.

Two cases were reported by Temoin.¹² Both patients had previously suffered typical attacks of appendicitis, and when seized with severe abdominal pains the existence of this history put all idea of a possible ruptured tubal pregnancy out of the attendant's mind. Temoin is inclined to believe that the previous attacks of appendiceal inflammation may have produced the conditions favoring extra-uterine fetation. Menstruation had in both cases taken place as usual, and the only symptom which pointed toward involvement of organs other than the appendix was the pale and anxious facial expression, so typical of peritonitis. This, the author says frankly, should have given him a valuable diagnostic clue. He does not hesitate to give a full account of his

mistakes. In the first case he began by incising the peritoneum, but encountering a mass compactly covered by extremely thick omental tissue, which looked to be difficult, if not impossible of dissection, he decided to evacuate the mass by way of the vagina, believing it to be a purulent salpingitis. He therefore closed the abdominal wound and incised the right cul-de-sac, but, "to his great surprise, nothing came away but a few clots," although the abdominal mass was of "enormous" dimensions. Nothing daunted, however, he returned the patient, now "extremely feeble," to her original position on the table, re-sterilized everything, and executed a median laparotomy, this time being rewarded by the demonstration and triumphant removal of a "voluminous hematosalpinx on the right" to which the appendix was adherent. The appendix was greatly enlarged and the left tube likewise swollen and filled with clots. The operative work was concluded by removing uterus and adnexa entire, so that although the patient recovered she found herself at the age of 22 childless and completely sterilized.

As Temoin's second patient was seen six months later, he had opportunity to profit by his first experience, and his first incision enabled him to find and remove a three-months fetus which lay in a pocket which appeared to be a diverticulum of the right tube, and to which the enlarged and inflamed appendix was firmly adherent, so much so that it made a "continuous mass" with it. In 1912 one of these cases of Temoin is cited as an example of how extra-uterine pregnancy may complicate and confuse the diagnosis in acute appendicitis, Fesq³ making use of it in his Paris thesis. We found no other examples of coincident ectopic gestation and appendicitis in French literature.

A Swiss case, reported in German, is that of Sutter, published in 1906.¹¹ The patient was twenty years old and had had two previous normal pregnancies. She entered the hospital because of abdominal pain and difficult and painful urination. The last menstruation had occurred eight weeks before. The condition rapidly growing worse, operation was undertaken, and when the abdomen was incised, the appendix was found to be much swollen and congested and adherent to the right tube, where ectopic gestation had taken place. The chief interest of the author,

however, seems to center in the finding of a foreign body in the appendix, the location and appearance of which he describes at great length. Under microscopic examination the foreign body proved to be a white peppercorn. The patient recovered.

In a general discussion of the possibility of two or more serious surgical conditions occurring simultaneously in the same patient, Shoemaker⁹ of Philadelphia reported an extra-uterine pregnancy associated with appendicitis, which occurred in a woman of 41, whose last pregnancy had taken place 14 years before. Rupture of the left pregnant tube had probably occurred two weeks before she was first seen by the author. There had been much rectal bleeding for two months and the symptoms had been so mixed, including bleeding from the bowel and vagina, severe pain in the left abdomen chiefly and abdominal soreness and chronic indigestion, that attention had never been definitely fixed by her physician upon the appendix region, and an attack of moderate severity had doubtless passed over before the ruptured extra-uterine pregnancy occurred. At operation the left tube was found ruptured near the attachment of the broad ligament, and many ounces of free blood and clot were present in the peritoneal cavity. The tube was removed, leaving the corresponding ovary. Examination of the appendix showed a hard meso, half an inch thick, the appendix walls dusky red, hard, thick and rigid, the mucous coat purple, but no pus present. This was also removed, and the patient made a good recovery, not only from the surgical condition but from the troublesome chronic indigestion which had been present for years.

Stewart explains his case, reported in 1913,¹⁰ in this way: "An old-standing appendicitis (the appendix extending to the left side) had set up an inflammation and formed adhesions around the left broad ligament. An extra-uterine pregnancy had taken place in the Fallopian tube on the left side, and had ruptured in about six weeks, causing the collapse and swelling from the resultant hemorrhage, which was limited by adhesions formed as a result of the appendicitis." The patient had suffered from abdominal pain for more than a year, but the acute attack of pain which caused her to seek medical aid had taken place only

two days before. As there was a profuse and offensive vaginal discharge and the breasts were enlarged a curettage was done, but though the discharge ceased milk could be expressed from the breasts, the temperature was subnormal and there was extreme pain. Under the diagnosis of extra-uterine pregnancy the abdomen was opened, the operator finding "not only the expected sac, but also the appendix and a loop of small bowel, these both being inflamed. There was also a large clot of blood." The operation was completed "by removing the sac, the left Fallopian tube, the appendix and the clot, and by stitching up the loop of bowel which had been slightly torn in separating it. The patient made an uneventful recovery."

Another English case is that of Richardson,¹ which is of especial interest in that the author could obtain no history of previous attacks of appendicitis. "The patient"—aged 24 and two years married, though not previously pregnant—"was a healthy looking girl, who complained of pain in the lower part of her abdomen, coming on at intervals; the pain was more on the right side than on the left." There was a tender swelling on the right side of the uterus, upon which even slight pressure caused much pain. Two hours after the first examination the author opened the abdomen, and on dividing the peritoneum, "a little straw-colored fluid escaped, but no blood. The appendix was found inflamed and dilated; it was, on opening it after the operation, found to contain pus." When the operator put his hand into the abdomen to examine the right tube and ovary, "some dark-colored blood welled up. The tube was found to be dilated to the size of a small hen's egg; it was ligatured and removed." There was a good recovery.

A third English case is that of Landau⁶ to which reference has already been made. The patient was forty years old and had two previous pregnancies, the first producing a normal child, and the second a carneous mole. There was no extended history of abdominal pain, and when first seen by the author the general condition was good. In view of the activity of the breasts and the presence of uterine bleeding a diagnosis of ectopic gestation was made, but the existence of a tender swelling on the right side of the pelvis also suggested appendicitis and

salpingo-oöphoritis. When the abdomen was opened the uterus was found displaced to the left by the swelling on its right. "This swelling was roofed in by two coils of small intestine and omentum. The intestines were packed off with gauze mattresses and the separation of the adherent bowel begun. During these manipulations foul smelling pus escaped from the swelling. It was mopped away and the true condition of affairs disclosed—viz., the appendix lying in an abscess cavity behind and below the right Fallopian tube, the isthmial portion of which was dark-red in color, enlarged to a diameter of nearly two inches, and occupied by a mole." The outer portion of the tube was removed and the sac cut away from the uterus, to which it was adherent. Recovery was uninterrupted.

The author believes the points of interest in this case are:

1. The simultaneous occurrence of two acute abdominal conditions apparently entirely independent of each other. The question as to which was the primary lesion is obscure. Probably the ectopic gestation was of longer standing than the appendicitis, the symptoms being latent until the superimposed appendicular inflammation hastened changes in the gestation sac, with the result that uterine bleeding began. The left tube appeared to be healthy, and in accordance with the bilateral tendency of salpingo-oöphoritis it is reasonable to assume that the right tube was free from any old-standing inflammation, and the infection of the appendix was not secondary to any tubal condition.

2. The difficulty in diagnosis of tender swelling in the right side of the pelvis, associated with a mild pyrexia. The absence of nausea, vomiting and abdominal rigidity seemed to negative the diagnosis of appendicitis, though the pelvic type of appendicitis is often atypical in its signs and symptoms.

The only case I have been able to find in which the diagnosis of coincident appendicitis and ectopic pregnancy was made previous to operation, is that Ruth,⁸ reported at the annual meeting of the American Association of Obstetricians in 1921. The patient was 23 and had previously had an abortion, from which recovery had been without incident. After passing one menstrual period she had an apparent attack of appendicitis which was accompanied by what was

taken for a slight menstrual flow. She recovered from this attack, but a month later had a most violent seizure, going into profound shock. When brought to the hospital the next day, the shock had largely passed and the temperature risen to 101. "Presumptive diagnosis of ruptured tubal pregnancy and acute appendicitis was made. Median incision below the umbilicus revealed the upper abdomen filled with pus, the lower abdomen and pelvis containing a large amount of partly coagulated blood. The right Fallopian tube was found to be ruptured. It contained a placenta with attached cord and a three inch fetus. The pus in the upper abdomen came from a rectocecal appendix which was covered with a thin film of exudate. There seemed to be no attempt at limitation of the infection by adhesions of omentum or intestinal loops."

Treatment after operation consisted in part of continuous proctoclysis, with the patient in a sitting posture well inclined to the right. Recovery though somewhat slow, was without incident. The author regards the use of the Fowler position which aids drainage and prevents infection from gaining contact with the open-mouth lymphatics of the upper abdomen, as an important adjunct in this favorable outcome.

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DISCUSSION

Dr. J. R. Harger, Chicago: I would like to stress a few points brought up in the paper and to cite a case similar to what the doctor has just based his discussion on.

I believe in some of these cases that ectopic pregnancy is brought about by appendicitis. I am satisfied that a great many cases of appendicitis associated with

ordinary pregnancy as well as ectopic are caused by pregnancy. I have seen several cases of normal pregnancy associated with acute appendicitis but in every one of these instances, however, the appendix was not located in the normal position but extending over the brim of the pelvis and down to the pelvis. The onset of pregnancy seems to cause a re-establishment or a lighting up of the old trouble in the appendix. Let me briefly cite a case that happened in 1913.

A woman of 23, normal in every way, with no previous history of appendicitis or pregnancy, believed herself to be pregnant. She went along to the third month and then had the typical symptom of the onset of a ruptured ectopic. I did not see the patient until five weeks after this rupture. At that time she had in the right side slightly lower than McBurney's point a mass the size of a fetal head. A diagnosis of ruptured ectopic pregnancy was made and it was a question whether or not there was an associated appendicitis. On opening the abdomen we found a very interesting thing. This patient had had a ruptured ectopic pregnancy and after rupture the ruptured membranes had closed and the liquor amnii had continued to form, producing a mass the size of a fetal head. On the superior surface of this mass was the appendix much larger than my thumb which undoubtedly had been the site of an old inflammation. It was firmly adherent to the mass and of course this whole inflamed mass was intimately associated with the cecum. Without too much disturbance to the surrounding tissue the entire mass was removed in toto. The stump of the appendix was first ligated, then the right tube and ovary with the placenta was removed in the mass. In the cul-de-sac were large blood clots covered over with fibrin and containing a fetus of about three months. I believe in this case the ectopic pregnancy was due to the condition of the appendix because since that time this woman has given birth to four boys normally, the right tube and ovary being absent.

Dr. Andy Hall, Mt. Vernon: In listening to the Doctor's paper I noted that his patient gave a history of appendicitis eight years previously and four years previously. We know that anything that causes pelvic inflammation that would in any way cause a pathologic condition of the tube is a potent cause of ectopic pregnancy. In the April issue of the *ILLINOIS MEDICAL JOURNAL* is an article by one of the Philadelphia surgeons, John B. Deaver, in which he points out that the appendix is one of the potent causes of ectopic pregnancy. I think that was quite likely the cause in the Doctor's case.

The diagnosis of ectopic pregnancy is rare but ectopic pregnancy is not so rare as we thought years ago. A few years ago I had occasion to look up the literature on that subject. And in the reports from Johns Hopkins University it was stated that of the pregnant women examined in that institution one out of every 92 was an ectopic. The reports from the Leland Stanford University showed that one out of every 152 pregnancies was an ectopic. In other words, ectopic pregnancy is about as frequent as is twin pregnancy. There are a great many physicians who have

practiced medicine many years who have attended several cases of twins, but you will have a great many physicians who have practiced medicine for 20 or 30 years who will tell you that they have never encountered a case of ectopic pregnancy. It is one of the things that should always be thought of in every case of acute pain in the abdomen in women of child-bearing age. Often the diagnosis is made correctly, but more often it is diagnosed as acute intestinal colic, ovarian inflammation, appendicitis, or salpingitis—never thinking it might be an ectopic pregnancy.

Dr. Mather Pfeifferberger, Alton (closing the discussion): In answer to Dr. Hall's discussion, there was no pathology in the tubes or ovaries. It was a case of acute appendicitis with rupture and an adherent omentum on top of the pregnancy in the cul-de-sac. Though I reported this case as an ectopic it was in fact an abdominal pregnancy, there being no connection between the pregnancy and tubes or ovaries. I am satisfied that if the acute appendix had not developed the patient would probably have gone on to a complete development of an abdominal pregnancy.

Dr. Harger's case was somewhat similar to my case, but he had pathology in the tube. The striking thing to me, as I have stated, is that there was no connection between the tubes and ovaries and the pregnancy and the condition of acute appendicitis engrafted on it.

REPORT OF A RARE BENIGN TUMOR PEDICELLATED TO UNDER SURFACE OF UPPER LID*

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EFFINGHAM, ILL.

Mr. G. H., aged 70, called at office, April 26, 1923. History: For some months previously the left eye had been blurring, especially when reading; but after rubbing the eye would clear up to some extent. There was no discharge, inflammation or pain. Family history somewhat suspicious but not positive. Examination of eye was negative in all respect except upon inversion of upper lid, I found a small symmetrically round growth or tumor attached to conjunctiva about the middle of tarsus with reference to both the horizontal and perpendicular diameters of tarsus. The tumor was about 7 mm. in diameter, disc-like in form, very thin in its periphery, conforming perfectly to the concavity of the lid's surface and in immediate contact with same. It was attached to the conjunctiva of lid by small pedicle about 1 mm. in diameter. The growth was removed by a small soft thread of wire snare

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, Springfield, May 6, 1924.

and the point of attachment was cauterized with silver nitrate.

The recovery was complete and uneventful, the point of attachment becoming smooth and normal in about three weeks. The color of the growth conformed to that of the lid's surface, and it was covered with what seemed to be normal conjunctiva. There was no pathogenic membrane or any evidence of infection in tissue of growth.

When we consider the great variety of tissue of which the lids are composed it is not difficult to account for the great number and wide variation in the character of tumors which may develop from this structure. The classification, description and differentiation of eye lid tumors are too lengthy to come within the scope of this paper, and therefore I will make no attempt to cover that phase of the subject further than to state that, so far, I have been unable to find anything in medical literature which simulates the growth which I have described, and this is my apology for making this report.

Following are the only cases I find reported that approach to any degree whatsoever and, they, in fact are very dissimilar:

James and Trevor (*Brit. Jour. of Ophth.*, Vol. ii, page 129) report two clinical histories of hemangioma of the palpebral conjunctiva. They were perpendunculated, slightly lobulated, tumors, but the growth which has been described was a pedicellated tumor. According to *The American Encyclopedia of Ophthalmology*, page 10253, Vol. XIII, and page 3056, Vol. IV, polypi of conjunctiva are more commonly found in children and usually caused by the irritation of a foreign body. This growth possessed none of the characteristics of a polypus.

I believe this growth was a direct sequela of an old chronic chalazion which perhaps existed years previously; the chalazion broke down and its exudates found their outlet through the tarsus beneath the conjunctiva, the exudates detaching the conjunctiva at the point of the pedicle, the pressure of lid flattening it out; finally the natural processes destroyed the infective material and the exudates became regenerated in the tumor to healthy tissue. Funchs regards a chalazion as being a peculiar chronic inflammation which produces granulation tissue which may contain giant cells. In conclusion, I will state

that some months ago I made a short verbal report of this case to the Chicago Ophthalmological Society. I beg leave to designate this growth as a benign pedicellated noncapsulated disc tumor of the conjunctiva of the upper eye lid. Unfortunately this growth was lost and an examination of structure could not be made.

SOME FACTORS IN RADIUM TREATMENT

R. CARTER CRAIN, B. S., M. D.

CHICAGO.

The type, location and condition of a malignant cell growth, the mode of application and the dosage, are important factors in the ultimate reaction of the tissues to radium.

Neoplasms made up of rapidly dividing cells are more radiosensitive than those composed of adult cell types. The cells of epithelium, for instance, are fairly resistant as compared to those of the ovary and testis, as first shown by Albers-Schonberg.¹ In the skin, the cells of the germinal layer, hair papillae, the sebaceous and sweat glands, and the endothelial cells of the blood vessels, are radiosensitive; while elastic and collagenous tissue, hair, etc., is only slightly susceptible.

The location, lymphatic drainage and blood supply of tumors, renders attack sometimes difficult and prognosis unfavorable. For example, a squamous cell epithelioma of the esophagus is far different from the same kind of a lesion situated on the lower lip; the former has a mortality of 100 per cent., while the latter shows a five-year cure of at least 60 per cent. Esophageal neoplasms, due to their inaccessibility, render any form of treatment difficult. Formerly radium was looked upon as offering much in these cases, but of later years we have come to regard it here, as unsatisfactory. It was not the awkward technique of application which changed our opinion, but the effect on the mediastinal structures, when a sufficient dose was given to kill the neoplastic cells. In the author's experience with radium, every case but two, died as a result of a mediastinitis.

The condition of the tumor, its extent and glandular involvement, the presence or absence of pressure symptoms, whether or not radium or x-ray has been used, all bear directly upon

the question of how much and how often treatment should be given. It is a well recognized fact that tumors are most susceptible to the primary radiation. Subsequent treatments are much less effective and this is considered by some theorists to be evidence of an immunity reaction, wrought by some change within the cells.

Radiation of tissue by imbedding bare needles or tubes, that permits the escape of the soft and medium hard beta rays, which are very caustic, leads to a necrosis for a distance of $\frac{3}{4}$ to 1 cm. from the tube depending upon the amount of radium and the time applied. This area of necrosis takes place regardless of whether the tumor is a resistant squamous cell epithelioma, or one of susceptible embryonic character with many mitotic nuclei. Beyond the field of necrosis, if the tumor is a susceptible one, will be found swelling, vacuolation and solution of the cytoplasm of the cell and swelling hyperchromatism, vacuolar degeneration and fragmentation or solution of the nuclei. If, however, the neoplasm is one of a resistant type, the autolytic process just described will be less marked, and in order to deliver a lethal dose, the radium container must be moved about to give a heavy homogeneous radiation. This area of autolytic change gradually merges distally, with a third zone, which is usually from 3 to 5 cm. distant from the focus of the radium tube. The cells here receive only the gamma rays, and at this distance it is a question whether the rays exert a restraining or stimulating action on the growth. Here again it seems probable that the type of cell must be considered. Ewing² has explained this seeming enlargement of tumors, sometimes observed after radiation, as due to hyperemia, exudation, degeneration or infection, and he states he has never been able to find anything that could be interpreted as a stimulation of tissue growth by radiation.

Screened applications of radium above the skin are unsatisfactory for anything but the most superficial lesions, and certainly have no place in the treatment of deep tumor masses. If a sufficient dose was delivered, even 2 cm. beneath the skin, to have a destructive effect on malignant cells, the skin would suffer considerable damage. Dean³ has found that radium, screened with 2 cm. distance, 2 m.m. brass, and 2.4 m.m. rubber, will produce an erythema of the skin with a dose of 800 mgm. hrs. Schmitz,⁴ using

a 50 mgm. tube of radium in a water phantom, estimated the erythema skin dose at 1 cm. distance as 1200 mgm. hrs. A greater dose than this delivered at the skin is apt to lead to bleb formation, ulceration, and very slow repair. It has been claimed that carcinoma cells are twice as sensitive to radiation as normal epithelial cells.⁵ Assuming this to be true; whether we calculate the depth dose by the inverse square of distance and absorption law or by the method described by Kroenig and Friedrich,⁵ we still are unable to give a lethal tumor cell dose at any great distance. Furthermore, the attempt to lay down a set rule for the estimation of radiation penetration, while physically sound, is not biologically sound. There are several factors of present unknown value to be taken into consideration.

The chemistry of irradiation has so far been undetermined, although it probably plays an important role. Considerable work has been done on the blood and in this connection should be mentioned Tryfus.⁶ He has shown that if a malignant tumor is radiated and the blood of the patient taken during the reaction and injected into another patient suffering from cancer cachexia, the latter will show a marked improvement. Investigations have also been made on amino acid retention, calcium ionic dissociation, colloidal dispersion, and cellular ferment activation, but so far no conclusion can be reached.

Another little known phenomenon to be considered is that of secondary radiation. The amount and distribution of the secondary rays within the tissues may have no little bearing on their action. These rays possess varying intensities, depending upon the atomic weight of the media through which they pass, and have been described as of three kinds. 1. The Scattered Rays, which possess the same physical properties as the exciting ray. 2. The Secondary Beta Ray. This is a corpuscular radiation composed of electrons moving with great velocity. 3. The Secondary Characteristic Ray, which does not resemble the primary exciting radiation but is solely characteristic for the substance in which it is excited.

The reaction also varies with the factors of time and the amount of radium used. For example, 1000 mgms. of radium applied to a tumor for one hour, will not have the same effect as 100 mgms. applied for ten hours, or 10 mgms.

applied for one hundred hours. Yet in each case, the dosage, as we calculate it in milligram hours, is the same. Regaud⁷ has demonstrated in his recent work on radiation of testes that a large amount of radium applied a short time will lead to a central necrosis, but many of the cells near the periphery will not be sterilized; whereas, a smaller amount, extended over a longer period, will lead to little or no necrosis but a complete sterilization of all the cells.

With these several points of radiation treatment in mind, one should realize that each case must be individualized. A given amount of radiation might restrain a growth in one case and produce no visible change in another. The tolerance and reaction of both the patient and tumor must be taken into account.

Conclusion:

1. The location as well as the nature of a neoplasm has an important bearing on the treatment.

2. All deep seated masses should receive intratumoral, rather than external radiation.

3. A sufficient dose must be given to destroy the tumor cells.

4. A large amount of radiation extending over a short period of time does not have the same effect as a less amount extended over a longer period.

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THE GROWTH OF NATIONAL POWER*

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At no time since 1787 has it been more important than now to re-examine the relationship between state and national power in the United

States. Since the foundation of this government there has been a steady increase in national powers and activities; but not until recently has this increase endangered the efficiency of the national government and the existence of the federal system.

National power has steadily increased through (a) the broad judicial construction of the constitution of the United States; (b) the amendment of the United States constitution; and (c) the more complete exercise of its authority by the nation. These three factors are merely parts of a common development, for broad judicial constructions have come as the result of conditions seeming to demand that the United States itself exercise broad powers; and constitutional amendment has been forced by conditions seeming to require that new lines be drawn between state and national power as to matters where desired results were not or could not be accomplished by judicial constructions.

Early in the history of this country the United States Supreme Court established its power as the authoritative interpreter of the constitution; as the final arbiter for the determination of the line separating national and state powers under the terms of a written document. Into this judicial function has gone statesmanship of a high character. As an organ of the national government, familiar with the needs of that government, this court throughout the course of its history has been favorable to constructions supporting national power; but has at the same time protected the federal system. Under Chief Justice Marshall the court laid firmly the foundations of national power, but in doing so restricted too severely powers which the states must continue to exercise. Under Taney the court somewhat moderated the undue severity of previous decisions, but without reducing national authority in any material respect. On the whole the court's attitude has been consistent and recent decisions show a desire to permit proper extensions of national power while protecting the states as units in the federal system.

The national government has increasingly come to exercise the powers vested in it under the constitution of the United States. In the days of the stage coach and the sailing vessel, there was little possibility of a developed and elaborate system of interstate commerce. With the development of rapid means of transporta-

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tion and increased ease of communication, interstate commerce has become increasingly important. With the development of this commerce, national power has increased step by step with the enormous increase in the transactions to be controlled. And the increased complexity of these transactions has necessarily forced a more complete exercise of this power.

At the time when the issue first presented itself, it seemed proper for the United States Supreme Court to hold that the admiralty jurisdiction of the federal courts extended only to the waters in which the tide ebbed and flowed. But with the development of the steamboat, such a doctrine became a bar to progress, and was discarded in the case of *The Genesee Chief v. Fitzhugh*. Had the United States Supreme Court not changed its original attitude, steam transportation on the waterways of the United States would be subject to federal regulation in parts of many streams, and to state regulation in other parts. This situation would have been difficult and dangerous. Constitutional amendment would soon have become necessary, had the court not wisely abandoned the view of an earlier day.

With the development of interstate commerce by railroad it has become increasingly necessary that the United States government assume practically complete authority over the regulation of interstate carriers by land, just as in an earlier period it became necessary by judicial construction to extend the federal authority over substantially the whole field of commerce by water. The chief steps in this extension of national authority over railroads may be traced in *Southern Ry. v. United States*, the *Shreveport* case, and *Railroad Commission of Wisconsin v. C., B. & Q. Ry.* Railroad transportation is necessarily a problem national in its scope, and the recent decision rendered through Chief Justice Taft is as necessary a development with respect to that transportation as was the case of *The Genesee Chief* in 1851. Intrastate rates bear such a close relationship to the regulation of interstate rates that the final step taken in the *Wisconsin Railroad Commission* case was necessary in the proper development of national authority.

Other tendencies in judicial construction, however, presented dangers to the federal system. Pushed to its logical extreme, the view taken in the *McCray* and *Doremus* cases would

have been destructive of state power. If the United States government could, by levying a tax or something in the name of a tax, take under its control matters otherwise not under the authority of the national government, no limit would exist as to national authority to encroach upon state activities. For this reason Chief Justice Taft and his colleagues took the proper view in the recent cases of *Bailey v. Drexel Furniture Co.* and *Hill v. Wallace*. The court was clearly right in its statement that the taxing power "must be naturally and reasonably adapted to the collection of the tax, and not solely to the achievement of some other purpose plainly within the state power." However much one may sympathize with the desire to abolish child labor throughout the whole territory of the United States, such abolition would be purchased at too dear a price, were it accomplished by the destruction of the powers of the states. It is interesting and characteristic that the United States Supreme Court at the same term and through the same spokesman should have declared invalid the federal tax upon child labor; and have sustained federal authority to control intrastate rates of railroads as incident to the regulation of interstate commerce.

The judicial function of interpreting the constitution is steadily in use. Constitutional amendments are much less frequent, and only since the Civil War has there been a tendency to increase national power through changes in the text of the constitution itself. The Fourteenth Amendment to a large extent nationalized the protection of individual rights. The Fifteenth and Nineteenth Amendments substantially (though not in legal theory) took over as a matter of federal control the regulation of the right to vote both for state and for national offices. The income tax amendment, by giving to the national government a large additional source of revenue, has made it possible for the nation to embark upon a system of subsidies to the states, through which the nation has come to a large extent to determine state policies as to education, highway construction, and other matters. Through the popular election of United States senators, established by amendment to the constitution of the United States, the states as such have become less important organs in the operation of the federal system. The prohibition amendment has transferred to the national

government responsibility for the enforcement of an important policy of police regulation.

It has been suggested that national power has increased by means of constitutional amendment, constitutional construction, and the more complete exercise of its recognized powers by the government of the United States. These three developments are so closely interwoven that the effect of one upon the other cannot be separated. The national government has not sought to exercise its powers fully until conditions have developed requiring such exercise. The regulation of commerce by water came with the development of the importance of such commerce. The regulation of interstate commerce by land began in 1887, and has extended with the need for the federalization of the control of that commerce. The same is true of the development of the postal system and of control over migratory birds.

The more complete exercise of national authority has naturally come only with the demand for new federal functions. Broadened constructions of national powers by the courts have also come only when the needs of the situation have forced and justified such constructions. Amendments to the constitution of the United States have come slowly and only as they have seemed to be necessary to meet new needs. With the increase of national authority and an increased national consciousness has naturally come a tendency to saddle new burdens and responsibilities upon the nation. It is easier on the whole for those in favor of a particular reform to obtain federal legislation for the country as a whole, than to make their views prevail through the actions of forty-eight separate state legislatures. It is in some cases easier to obtain an amendment to the constitution of the United States than to obtain the success of movements through separate state jurisdictions.

It is impossible to draw any definite or permanent line between national and state functions. Railroad regulation began with the states, and has properly tended to come under national control. The line separating state and national functions must and will shift. In the readjustment of functions as between state and nation, the United States is but doing what is going on in other federal systems. In Switzerland there has been a steady tendency toward the enlargement of federal powers as against those of the cantons, though little of value can be drawn for the

United States from the experience of a small and compact territory such as that of the Swiss federal republic. In Germany, before the fall of the empire, there was also steady development toward an increase of imperial as against state powers; and this development has been carried still further by the constitution of the present German republic. In Australia, there have for years been efforts to amend the commonwealth act so as to enlarge the powers of the commonwealth as against the states. These efforts at constitutional amendment have failed, but a recent decision of the High Court of the Commonwealth of Australia gives the supporters of increased national authority much for which they fought.

The most recent increase of national authority in the United States has been through subsidies to state and local governments. Congress appropriates a large sum of money to be distributed among the states, the states or their local communities meeting federal appropriations by an equal sum, and being controlled to a large extent by federal law and federal administrative regulations in the expenditure of the money so obtained. With respect to agricultural education, vocational education, highway construction, and maternity and infant welfare, a definite system of federal subsidies has been built up; and constant pressure is being placed upon Congress to establish new plans of the same character.

National subsidies are limited only by the extent of federal revenue, and by the limits if any upon the persistence with which new subsidy schemes are urged upon Congress. With respect to matters judicially cognizable, the Supreme Court of the United States may be relied upon to protect state powers. But no organization exists for the restriction of the evils of the subsidy plan. The development of this plan is dangerous to the national treasury; but in favor of any proposed subsidy it is possible to organize a mass of state and local pressure not capable of effective political resistance. Unfortunately neither state governments nor their local subdivisions can be expected to resist encroachments upon state and local authority through the subsidy plan, for governments are usually willing to surrender control over policy in return for additional and immediate revenue.

No function national in its character will remain permanently under the control of state

and local authority, nor should it so remain; but any development which may without limit supersede state authority is dangerous both to the nation and the states. When a problem is national it must be dealt with by the nation, and to meet it the nation may often have to readjust its administrative and judicial organization. A national policy once adopted must be efficiently enforced. National prohibition found the federal government unprepared for enforcement, though recent judicial reorganization may in part remedy this situation.

Though the nation must and will finally deal with problems of a national character, the presumption must be against the assumption of a new national function, unless it may be clearly recognized as one properly to be withdrawn from state and local control. This view is not based upon theory, but upon the need for efficient enforcement of governmental policy. The undue assumption by the national government of detailed governmental tasks leads to inefficiency because (a) it makes the federal administration less effective, (b) it removes a feeling of local responsibility for law enforcement.

A governmental organization may readily become so large as to be inefficient, and the danger of this is the greater if the government controls a wide expanse of territory and governs a large number of people. State governments are perhaps now less efficient than the national government, though this statement may be challenged. Yet the national government has tended to become less efficient as it has assumed new and diverse functions, to be performed in detail throughout the whole country.

Not only this, but when responsibility for a policy is transferred to the national capital, the interest and responsibility of local governments is to that extent reduced. The establishment of national prohibition has in some respects weakened not merely the respect for law, but the enforcement of law, because weakening the responsibility of other governments. A community enforcing prohibition within its borders as the result of a periodical local option vote had more feeling of responsibility for law enforcement than if the duty is upon a distant government. Some specific local interest in law enforcement is necessarily lost when the determination of a policy shifts first from the locality to the state, and then from the state to the nation.

No one sympathizes with lynch law in any portion of this country; and every citizen desires that effective action be taken to punish those engaged in mob violence. Yet the proposed congressional legislation seeking to a large extent to turn over to the national government responsibility for the prevention of lynching and for the punishment of those engaged in such unlawful acts is of doubtful wisdom. The national government is remote in many ways from the individual citizen, and the more tasks of local government which it undertakes the less effectively will it be able to perform the important function for which it was established. The Dyer bill, if passed (as is now doubtful), may in many cases accomplish good by bringing to justice leaders of mobs who would otherwise go unpunished. But the efficient enforcement of law in this country depends not upon the national government but upon the states and upon local governments; and an effort to have the national government take over the responsibility in this respect may in the long run lead to worse conditions by relieving the states and the localities from direct obligations which they should bear.

Whether a policy be local, state, or national, its effective enforcement must in the long run depend upon local sentiment and a feeling of local responsibility. Local sentiment and local co-operation are the more difficult to develop, the farther the control of and the responsibility for law enforcement is removed from the communities themselves. The steady overburdening of the national system will break down the efficiency of that system, and will necessarily result in less adequate enforcement of the policies determined upon. From the standpoint of the supporters of a particular policy, it is possible oftentimes to get a prompter legal recognition of that policy through the national government than through the states; but the transfer of control over that policy from the smaller to the larger area of government may in the long run defeat many of the purposes of those advocating the policy. Although proposals of federal action either through subsidies or otherwise may often involve dangers to the federal system and to the very movement sought to be encouraged, yet such proposals are difficult to oppose on their merits, because they seek some immediately desirable results.

In the past national functions have developed

haphazard, and without conscious policy. This development involved no dangers so long as the United States was merely occupying recognized fields of federal power, whose boundaries were subject to judicial delimitation. But there is no body whose duty it is to check new ventures under the plan of federal subsidies. A conscious policy must now be developed as to the future relationships between state and nation, if the two are to be effective, if the national treasury is to be protected, and a truly federal system preserved. No hard and fast line can ever be drawn between functions that are national on the one side and those belonging to the states on the other. But at the present time some lines can be drawn. The national government can never take over and exercise effectively the detailed control of police regulations within the state; and the general administration of civil and criminal justice will long remain with the states. It is now clear that the states rather than the national government may more properly handle such matters as education, highway construction, health, and labor legislation. This enumeration of matters of internal administration may be continued indefinitely.

What is the function of the national government with respect to activities which more properly belong to the states? A subsidy plan leaves the detailed administration to the states but subordinates the policy of that administration to the national government. It appears to leave authority in the states without doing so. There is, however, an important sphere of desirable co-operation between state and nation—an important function of the national government with respect to the state governments themselves, as to which the nation may be highly useful, without encroaching upon powers which it should not exercise.

One of the most important needs of state and local governments is something of standardization and co-ordination. In order to meet its problems, each should be able to call upon the accumulated experience of other states. No one state has the means nor could it effectively set up the machinery for a careful comparative study of institutions in all the states. The national government has to some extent attempted to inform the states about the activities of other states, but little has been done effectively in this field. Each state needs for example to know the

experience of every other state in the fields of taxation and budget administration. Through its Bureau of the Census, the United States government actually publishes an annual volume of financial statistics of states, and this volume is of some help to the several states, although its helpfulness may be easily exaggerated. The Bureau of the Census published for a number of years an annual bulletin on the financial statistics of cities of a population over 30,000; and these volumes were also of aid although the activities of the national government in this field as well were not as useful as they might have been.

In the field of labor, the national government has done useful and effective work and has had some real influence upon state legislative and administrative policy. The movement for workmen's compensation has been a rapid one in the states of this country, and within a short period has completely transformed the relationship between employer and employee in the case of accidents. The United States department of labor has performed useful and important services in this connection through the preparation of studies, and through the publication of the proceedings of the International Association of Industrial Accident Boards and Commissions. One of the latest important services performed by this department is a careful and detailed study of workmen's compensation insurance and administration.

In the field of judicial administration and in the enforcement of criminal law, no single state can take an effective leadership in the development of judicial statistics and the careful study of methods of judicial administration. In this field alone national action may accomplish more to aid in the improvement of government than through the passage of a half-dozen Dyer anti-lynching bills.

Even though it be admitted that state governments are less efficient than the nation and that local governments are to a large extent inefficient, the remedy is not to deprive these governments of control over matters of state and local policy; but rather a systematic effort to improve conditions in these governments themselves; for, however much the national government assumes new functions, the effective enforcement of policy will depend upon the sentiment in the states and local communities. Upon the preservation of state

governments depends the continuance of our federal system of government. A concentration of authority in the national capital is sure in the long run to lead to less efficient government, to a high degree of bureaucracy, and to a lessening of the democratic spirit in the national, state, and local governments. The function of the nation in acting as an investigating and co-ordinating agency, and in reporting upon the results of experience in state and local government, is more important than is the taking over of activities which may more properly be handled through local agencies. And the national government may in the long run be more efficient and more of an aid in the establishment of efficient government throughout the nation by means of activities which will aid the states to solve their own problems, than through plans which seek to take these problems from the states themselves. There must be a halt and an immediate halt in the present development of federal subsidies unless the national treasury is to become bankrupt and the state cease to be effective agencies of government in this country. And the national government must cease the assumption of new tasks involving detailed administration unless it is to become highly inefficient.

The national government deals with and must continue to deal with many of the same problems as do state governments. In many cases close relationships now exist between state and national administrations. Such relationships are beneficial to the states where they do not lead to the possibility of national dominance over state policy. Only a few of the cases of federal co-operation and helpfulness are noted above. It may almost be said that so many federal agencies in Washington have relations with state government, that the comparative operation of state governments may best be studied through such agencies, rather than in the states themselves. This would be largely true if the student could know all of the federal offices having relations with the states. Unfortunately the relations between the national departments and the states are scattered and unco-ordinated. If the national government is not itself to take over the functions of state and local government, but is to aid effectively in their performance, it may wisely set up something in the nature of a department of state relations to co-ordinate its own relations with the states and to advise them in their problems.

THE TREATMENT OF GONORRHEA OF THE GENITAL TRACT*

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The subject under consideration, "The treatment of gonorrhea of the genital tract," with its many and varied complications, has always been a problem of enormous dimensions confronting medical and civic organizations. Gonorrhea has ever been and in all probability will so continue to be a menace to future health and the pursuit of happiness. It is indeed alarming, when one considers the vast hoard of gonorrheas always present in our citizenry, some seeking medical aid with a firm determination to eradicate the condition, others with more or less indifference, and not a small group who through ignorance obtain no medical assistance.

We know of no greater obstacle confronting the youth of this age than the ravages of the gonococcus and its co-partner, the spirochete of syphilis. Civic, medical and philanthropic organizations in a sincere effort to eradicate or control the venereals, without a question of doubt have accomplished a great piece of work. The spotlight of public attention has been focused upon this hitherto slightly understood dilemma, and out of chaos have arisen many organizations for the care and treatment of the unfortunate venereals. The various clinics, leagues, institutions and so forth, throughout the city, have in many instances rendered aid of inestimable value, while in other cases the so-called institutes and free clinics are organized for none other than personal gain, hiding under the guise of charity.

Cases seeking charity treatment for venereal disease should be carefully followed up, if you please, in order to ascertain their actual status. We firmly condemn the free treatment of cases with venereal infection unless it has been definitely established that they are worthy of charity.

We further feel that an important position still exists for the private practice of urology and venerology, although not a few urologists only with fear and trembling admit that they treat gonorrhea and syphilis. This condition of affairs is almost beyond my understanding. We

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think it not illogical to assume that a thorough working knowledge of the surgery of the lower urinary and genital tract is an absolute necessity prior to attempting renal or ureteral surgery, hence the admission that gonorrhea is a problem for the individual urologist should not jeopardize the possibilities for obtaining cases of vesical or renal surgery.

The Treatment of Gonorrhea: A treatise on the treatment of gonorrhea of the genital tract is exceedingly difficult to write, as practically all literature on this subject contains the description of methods that have been handed down from one author to another, some of which have been long discarded and very brief original work is noted. You will agree also that to cover in detail this important subject within the time allotted would be impossible, hence just the important and practical phases as we see them will be considered. The treatment of gonorrheal urethritis and its complications has seen but few radical changes in the *modus operandi* of attack within the past fifteen years; however, we do not necessarily infer from this that the subject has suffered from a lack of intelligent scientific research and study. If we pause to consider the cultural difficulties of the gonococcus and the intricate ramifications of the tissues and organs generally involved, and seeming lack of advancement or achievement in further developing a more uniform and efficient treatment is well understood. Urologists are undoubtedly seeing cases earlier and patients realize the value of proper and efficient care at the very onset, hence relatively few complications such as strictures, prostatitis, periurethral abscesses and so forth are now seen.

In considering the proper rational for the management of acute gonorrheal urethritis, one is confronted with a formidable array of silver salts, dye stuffs, vegetable astringents and so forth, all of which are of some value depending on the case at hand and the results desired.

Our experience has been that the unpleasant complications during the onset of an acute attack are chiefly due to overtreatment on the part of the physician and patient. We consider it good judgment to err on the side of safety and rely during the stage of congestion on hot fomentations, rest, carefully selected diet, urinary antiseptics, sedatives, support to the part, rectal suppositories of Ext. belladonna and ichthyol and

numerous sitz baths. The free intake of water and active bowels must be insisted upon, also exercise and sexual excitement must be avoided.

Abortive methods have long since been discarded as unscientific and dangerous. Acute inflammation of the urethra is not unlike inflammation of other mucous lined parts. The abortive treatment of acute inflammation in other parts is likewise unsuccessful.

The hyperacute stage, with edema of the loose cellular tissue, ectropion of the meatus, pain, discomfort and so forth, soon passes and copious discharge now appears. The internal medication during the beginning of the attack and when the symptoms are hyper-acute consists of saline laxatives and diluents. The alkaline salts of potassium and sodium are especially efficacious in reducing the acidity of the urine and rendering micturition less painful. The action of all these salts of sodium and potassium is to reduce acidity; they escape as carbonates. They act directly upon the nerves of the kidneys and renal cells, increase the water and solids excreted, hence are direct diuretics. The anti-belennorrhagics, namely oil santal, balsam copaiba, Ol. of cubeb, Kava kava and so forth, are oleoresinates which are excreted by the kidneys and appear in the urine as sodium and potassium resinates. They have a direct action on the lower urinary tract of a specific and antiseptic nature; they further relieve acute symptoms, diminish discharge and aid in the prevention of complications. Theoretically speaking, balsamics are of greater value during the height of discharge but combinations of alkaline and balsamic drugs are used by us throughout the entire course of attack, providing the gastric digestion is not disturbed.

Local Treatment: The local treatment depends naturally on the case at hand, each being more or less an entity unto itself and should be so considered. We chiefly rely for office treatments on instillations of protargol, argyrol, mercurochrome, 220 soluble, or warm irrigations of potassium permanganate 1:10,000 to 1:1,000. When discharge persists we advise silver nitrate irrigations varying in strength from 1:4000 to 1:2000. Patients are given one of the albuminates of silver for home injections and in our experience Neo Silvol 5% has been entirely satisfactory. This silver salt does not irritate, and also a fact of considerable importance, it will not

discolor the hands or linen, mercurochrome, 220 soluble, in our hands has been rather disappointing, although given a very exhaustive study in genital gonorrhea and in upper urinary tract conditions.

The discharge must be examined for the disappearance of organisms from the pus cells, and the appearance of extracellular forms, also the arrival of lymphocytes which is a favorable omen. Local medication is generally governed by the microscopic picture. We cannot too firmly emphasize the importance of routine prostatic analysis and massage in every case of urethral infection. This is indeed of much importance as prostatic abscesses quickly develop and it is very embarrassing to have your attention called to the fact by one of your colleagues, should your case be treated elsewhere.

Instrumental Treatment: Instrumental treatment is generally ushered in at the termination of the discharge, but not, however, until the urethra has been stimulated with 2% silver nitrate in order to produce a recurrence if possible. Should the discharge reappear, naturally resort to mild astringents or antiseptics as the case may demand until the provocative reactions disappear. Considerable judgment must be utilized as to the proper time to institute urethral instrumentation as hasty manipulation will frequently produce complications or irreparable pathology.

In case the provocative course is non-productive, then the urethra should be carefully dilated and massaged over the sound, in order to force to the surface any hidden or dormant areas hitherto quiescent.

The instrumental treatment consists of gradual urethral dilations with Charriere Benique, Otis or Van Buren sounds to be followed by Janet or Dida irrigations or by instillations with the Guyon or Ultzman syringes. All instrumental work must be judiciously performed.

Persistence of Discharge: Cases in which the discharge persists over rather an extended period are commonly seen and it generally indicates that the condition has taken on chronic characteristics. The pathology of the acute and chronic processes are quite distinct and yet the two stages merge so imperceptibly from one to the other that an exact line of demarcation is impossible, hence the necessity at this time of a careful urethroscopic inspection of the entire urethra. A meatotomy

is frequently necessary. Chronic discharges are always due, in the absence of prostatitis or vesiculitis which are so frequently present, to infected Littre glands, strictures, or infected crypts of Morgagni. These are easily diagnosed urethroscopically.

The Littre glands, as you remember, are the true glands of the urethra, being situated in the mucosa and submucosa and one or many of these, it has been said, may empty into a crypt of Morgagni located in the upper wall and in the spongy urethra. We found it rather difficult to obtain any definite knowledge of the anatomy and course of the ducts of these glands. That they do not open at right angles to the urethra and that their lumen is generally impossible to enter by needles or sticks of fused silver has been clinically demonstrated by all who are treating these cases endoscopically. The treatment of urethral gland infection consists in selected cases of local applications of 5% silver nitrate or by the production of an adhesive inflammation with the electric needle.

I do not intend to infer that all cases of persistent discharge are necessarily treated urethroscopically as a large majority of cases with soft or hard infiltrations, multiple infected glands, granular patches, erosive ulcers, etc., are usually more satisfactorily treated with sounds and Kolman dilators, to be followed by dorsal massage and irrigations and instillations of antiseptics and astringents.

Urethral polyps, which not uncommonly are productive of discharge, are destroyed by diathermy, a very satisfactory procedure through the cysto-urethroscopic or plain endoscope.

Urethral Strictures: We will deal briefly with the treatment of urethral strictures. These cases are diagnosticated with a bougie a boule and the endoscope, to ascertain their character and extent. If soft and dilatable, naturally gradual dilation is advised; however, we do not hesitate to insist upon urethrotomy and future gradual dilatation when the condition merits. We must not lose sight of the significant fact that strictures are commonly the forerunners of pyelitis, and this should ever be in mind in cases of persistent cloudy urine, in the generally used, three glass occult inspection test. We have seen cases clear up under a few lavages of the renal pelvis that had been massaged and dilated unsuccessfully for months.

The open operation for complete removal of anterior urethral stricture, as advised by McGowan, has not been generally adopted, it being rather laborious for such minor local pathology and in our opinion does not supplant former satisfactory methods. Strictures should be very scientifically treated as forcible dilation is often productive of considerable grief and not uncommonly followed by urethral fever and shock.

Epididymitis, Acute and Chronic: The acute attacks of epididymitis requires a very rigid regime of rest, active functions, support to the part, hot applications, rectal suppositories, sedatives internally and careful observation for the appearance of suppuration. We are not in the habit of operating on every case of epididymitis, but we are of the opinion that epididymotomy is justifiable in cases of advancing leucocytosis, increased swelling, advancing temperature and pain. We believe that the operation is surgically sound even though pus may not be found at the time, for the simple reason that tension is relieved and patients are thereby rendered more comfortable. Furthermore, the course is considerably shortened.

It is important to note that a wide incision and thorough and prolonged drainage of the epididymis is imperative or otherwise the incision will close prematurely and a very severe and troublesome vas differentitis results, which is extremely chronic in its course and discouraging to the patient.

We are of the opinion that a large number of cases with abscesses of the epididymis are due to trauma and not altogether to the gonococcus. Epididymitis with abscess is very likely to occur following vigorous instrumentation. This fact is universally known; also not a few cases of supposed gonorrheal epididymitis are none other than cases of genital tuberculosis.

The recurrence of discharge which usually appears following the subsidence of the epididymitis, is treated in the usual manner, namely, injection of mercurochrome, 220 soluble, one of the silver salts or irrigations with potassium permanganate. Naturally all urethral treatment is discontinued when epididymitis appears.

Diathermy, which was used by Schmidt, and one of us (White) about ten years ago in cases of subacute and chronic epididymitis, has been again uncovered, and in our hands with improved equipment has given results heretofore unat-

tained. The time of application, strength of current and so forth, must be governed by experience and with the assistance of the patient. We cannot too forcibly recommend this valuable agent in the treatment of these obstinate cases with thick, chronically inflamed epididymi. Cases of recurrent epididymitis are permanently checked by vasotomy.

Prostatitis, Treatment of: Gonorrheal prostatitis we believe occurs to a greater or less degree in practically 95% of all cases of posterior urethritis and we have seen few cases in which the deep or posterior urethra was not early involved. It is virtually a case of continuity of tissue. The gonococcus passes into the prostatic ducts and prostatitis results, an ever-present sequela of urethral disease. In acute prostatitis three forms are recognized, namely, catarrhal, parenchymatous and suppurative or abscess. The indications for its proper course of treatment are to, first, lessen the severity of the posterior urethritis; second, prevent suppuration, and third, evacuate a prostatic abscess at the earliest possible moment. With the onset of severe acute prostatitis all local urethral treatment must be discontinued. Patients must be hospitalized if possible, urinary sedatives are given and the pain and tenesmus controlled by opium. Hot sitz baths, hot packs, and continuous rectal irrigations by means of a two-way catheter are often useful. The frequency of urination is a troublesome symptom and is generally relieved by administering combinations of tincture of belladonna and hyoscyamus or the bromides with *mistura La Fayette* internally. These patients must be catheterized when complete retention appears and in some cases it is considered good practice to install an indwelling catheter. The frequent passage of a rubber catheter into an acutely inflamed urethra is not wholly free of danger. The prostate should be examined daily and the blood picture must be daily obtained in order to be able to advise an early proctomy should the gland proceed to the stage of suppuration. We have found it advisable in selected cases to drain the prostate, even though suppuration may not be present; the tense capsule is incised, engorgement relieved, and catheterization or indwelling catheter becomes unnecessary. We have carried out this procedure with encouraging results in quite a few cases and noted a marked improvement in the general condition and certainly an

earlier convalescence. It is necessary to call your attention to the fact that in cases who have had prostatotomies performed, nothing is gained in a short period of draining the wound, if the best results are to be obtained. Epididymitis very commonly occurs if the wounds are not thoroughly and properly packed and drained. This condition is not unlike a vas differentitis following an improperly drained epididymotomy wound.

Chronic prostatitis is the most discouraging complication of a Neisserian urethritis, and while the treatment is not entirely unfavorable yet the pathetic mental attitude which is so commonly seen, linked with our many shortcomings in the proper disposal of these cases, presents to us a rather staggering problem. The modern treatment consists of a regular routine of careful and prolonged prostatic massage, in order to free the glands of chronic inflammatory products, which have been retained in the dilated tubules by plugs of inspissated waste materials, occluding the prostatic ducts. Urethral dilations followed by instillations are an important adjunct in the routine treatment. It is imperative that the patient's confidence be obtained and all mental worry be dispelled in order to obtain satisfactory results.

Seminal Vesiculitis, Gonorrheal in Character: Seminal vesiculitis of gonorrheal origin as a distinct entity does not exist, it being invariably associated with a prostatitis and posterior urethritis. The successful treatment of seminal vesiculitis depends somewhat upon our knowledge of the varied and extensive symptomatology. The multiplicity of symptoms depending upon the anatomical proximity of the vesicles to the bladder, prostate and urethra.

The treatment at the onset is not unlike the suggestions formerly given for prostatitis, namely palliative and hydrotherapeutic and in a majority of uncomplicated cases the results are satisfactory. The acute suppurative cases which are not relieved by hydrotherapeutic measures must be freely drained by way of a perineal section and vesiculotomy. In chronic seminal vesiculitis which is usually complicated by sexual, rheumatic or psychic difficulties, we encounter a most difficult and trying condition. Chronic seminal vesicle cases should be given a regular thorough course of massage, urethral dilations and medications. The various complications, namely sexual, rheumatic, upper urinary tract

conditions due to urethral obstruction, exostosis and so forth, must be separately considered.

We have always been of the opinion that if vasotomies and seminal vesiculectomies were earlier performed we would seldom experience such chronic complications, and our end results would be more illuminating. The psychic and sexual symptoms are late manifestations often due to a prolonged and irksome treatment with lack of encouragement. The synovial membranes are areas of choice predilection for the gonococic toxine, hence eliminate the vesicle sacs of infection at the earliest possible moment by vasotomy or by surgical attacks on the vesicles.

The treatment of joint cases complicating seminal vesiculitis is briefly outlined as follows: The case must be very carefully studied and all possible foci of infection should be eliminated. Teeth, tonsil, sinuses and every atrium of infection must be considered. We urge all rheumatic cases to become hospitalized in order that our treatment may be more rigidly instituted. These patients are given the usual routine urethral and prostatic treatments and in most cases heavy casts are applied for the purpose of obtaining absolute rest of the affected parts. Vaccines and foreign protein injections are used, and in some cases undoubtedly give splendid results. These results, however, are unfortunately of but short duration. Heat and extension are still useful and in those cases where our results are unsatisfactory, vasotomy or vesiculectomy is advised.

Sexual Cases: In rather a large number of cases with sclerotic vesicles, the sexual status was a negligible quantity, presenting every phase from mild inaptitude to complete impotence. Atonic vesicles were noted in cases of ejaculatory praecox, whereas cases of complete impotence usually presented hard fibrous sclerotic vesicles. The treatment in these cases is either palliative or surgical, the former consisting of endocrine therapy internally, alternating cold and hot rectal douches, caput applications of 20% silver nitrate or diathermic applications to the caput and the necessary encouragement to the patient. Fuller has reported a number of such cases in which the sexual status was normal following vesicle drain. We have had a similar result in some cases.

Summary:

1. The correct rational in the treatment of

gonorrhea and its complications in the male presents many difficult problems as yet unsolved.

2. Scientific research must be fostered.

3. Urologists must realize that gonorrheal infection of the genital tract is an integral segment in urology, equally as important as upper urinary pathology.

4. If gonorrheal cases were treated with more thought and consideration by individual urologists, venereal clinics and institutes would not flourish, and our store of scientific knowledge would be increased manifold.

7 West Madison Street.

PHYSIOTHERAPY AS APPLIED TO EYE, EAR, NOSE AND THROAT*

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To investigate the manifold variety of diseased conditions of the eye, ear, nose and throat with a view to applying physiotherapeutic remedies is a considerable task. In the first place to understand and at times to devise suitable techniques for applying these remedies; in the second place to be able to arrive at fixed opinions on the actual, the relative and the complementary values of the diverse electric modalities after a long series of treatments and experiments requires careful study and a great deal of observation and of time.

In my practice of eye, ear, nose and throat work in addition to orthodox methods, I have resorted to the use of 1, Galvanism; 2, High frequency; 3, Static electricity, and 4, to a limited extent, therapeutic light and heat.

I have tried to concentrate on these and ascertain their limits, expecting thereafter to branch into other fields of physiotherapeutic activity as the need became definitely apparent. Undoubtedly in certain directions within the limit of these specialists, great strides forward have been made from the use of such remedies as quartz lamp and x-ray. But I shall be obliged to relinquish discussion of these to others more qualified to discuss them than I am.

Now in the short space of time that is allotted to me, it is not my aim to confuse you with giving you a mere jumble of scattered facts, and I think this can be avoided if I will dwell upon the details of a few simple techniques referring then

briefly to the diseased conditions wherein these techniques can be applied with success.

I want to demonstrate first a few points on galvanic treatment of the nose. As an indifferent pole is used a Morse pad soaked with bicarbonate solution and placed on the back of the patient's neck or beneath the palm of the hand. In nose work the indifferent pole is usually made negative. On the positive side I employ two pieces of copper wire of about 18 or 20 gage thickness, taken from a spool such as you see here. This can be purchased in any hardware store. Each wire is coiled at one end to form a spiral contact around the terminal of a bifurcated cord. The straight portion is made about 5 inches in length, flattened a trifle with hammer or pinchers, so that it will hold the cotton with which it is now wrapped, dipped in a solution of some non-acutely irritating germicide such as 5% protargol or 1-500 acriflavin and inserted into the nose, successively in two directions, first along the floor of the nose extending into the naso-pharynx; second, extending upward and backward to take in the region of the middle and superior turbinates. The average dosage is 7 milliamperes with 5 minutes' duration of the electrodes in each direction. By the treatment is obtained the sedative and shrinking action of the positive pole itself and the deep germicidal effect of antiseptic positive ions cataphorically penetrating into the tissue.

One, two or three treatments such as these on successive days effectually relieve an acute or subacute choryza. Repeated at suitable intervals they will relieve and suppress to final extinction attacks of hay-fever. With the treatment have been obtained my only satisfactory results in cases of atrophic rhinitis.

In nasal obstruction due to chronic intumescent hypertrophy of the turbinates definite and fairly permanent improvement in breathing capacity from shrinkage of the turbinates can be obtained.

In cases of chronic mucopurulent rhinitis improvement to the point of cure will result when complicating conditions are absent or have been surgically removed. Let me amplify this last statement. Where there is a markedly obstructive deviation of the septum, or a septal spur in contact with a turbinate, or a suppurating sinus involvement or nasal polypi coincident often with an ethmoidal suppuration, a surgical operation is

*Read at Logan Square Masonic Temple, Oct. 21, 1924.

the first essential. Subsequent to the operation the discharge though diminished sometimes still persist. In such cases the treatment I have described is very effective to follow up.

And right here I want to digress a moment to make this statement that in cases of nasopharyngeal catarrh where there is much down dropping and accumulation of mucus in the throat, the removal of chronically inflamed tonsils is sometimes more magically effective than any procedure that can be done in the nose.

In applying galvanism to the ear a wire electrode is employed of the same type that I have described except that it is cut to a two-inch length. The first use that I have for galvanism in the ear is to obtain anesthetization of the ear drum, preliminary to a paracentesis; the process being one of cocaine cataphoresis. In wrapping the wire the cotton should be left loosely tufted at the end, then moistened with sterile tap water and dipped in cocaine flakes. The electrode should be well inserted into the external canal so that contact with the drum is assured. Dosage is 1 to 2 milliamperes for five to ten minutes.

Cases of diffuse external otitis with inflammatory swelling of the external auditory canal walls in varying degree to occlusion are my second indications for the use of galvanism in the ear. The method of treatment is the insertion into the external canal of the ear of the electrode wrapped in cotton and dipped in the protargol or acriflavin solution. Dosage is 2 to 4 milliamperes; duration of treatment ten minutes. And I find that the hard swelling in the external canal often recedes and cure is obtained without the necessity of using a knife upon the patient.

Galvanic methods for treatment of deafness and suppurating ears have been advocated. I have used them and believe them of value but have discarded them for diathermy methods that are equally or more effective and more agreeable to the patient.

Of various ways in which galvanism can be employed about the eye I have retained for myself only the use of the small felt-covered disc. The indifferent pole as usual is the Morse pad applied preferably to the back of the neck. The active pole soaked in bicarbonate solution I have used negatively applied to the eye for incipient cataract with what I have thought was slight clearing of the cataract and improvement of vision.

With the active pole positive I have believed that progress to cure was hastened in many cases of iritis; and I am practically convinced that in all cases of corneal ulcer the spread has been checked and clearing and progress to recovery accomplished without need for powerfully caustic and germicidal agents being applied to the site of the ulcer, which it is the habit of ophthalmologists often otherwise to employ.

Coming now to the more interesting topic of diathermy I have a few points in technique to mention that are now and a few achievements to record that have been most pleasing to me.

In applying high frequency to the eyes, I use a single or double non-vacuum eye-electrode of the type that you see here. Notice the metal cap and ring on the handle portion of the electrode. The ring is for the cord connection. The electrode is held by the patient directly in the hand between thumb and two fingers. No additional holder is required.

In treating the eye to obtain deep effects within the eyeball, the straight d'Arsonval current is to be advised, the eye-electrode being attached to one of the terminals, a plate of block tin on the back of the patient's neck or upper dorsal region being attached to the other to complete the circuit.

Where a more superficial heating is desired as in the eyelids or on the surface of the cornea, the plate of block tin is connected to one of the d'Arsonval terminals, the eye-electrode is attached to the Oudin terminal; and if you are not convinced from my telling you so, that with the former a more deeply penetrating, and with the latter a more surface effect is obtained, you only need to try the feel of the experiment on yourself. Average dosage for these treatments is up to 300 milliamperes; time, twenty to thirty minutes.

In treating cataracts I have obtained results which have seemed very wonderful. Senile cataracts of the stellate type with radiating sectors of opacity show most improvement, while the so-called cataracta complicata which is usually of a posterior polar type and also nuclear cataracts improve some but not so rapidly. With cataracts of the first type mentioned, improvements in vision from 20/200 or 20/100 up to 20/40, 20/30 and 20/25 have not been especially rare.

In cases of stubborn suppurative conjunctivitis where results from medicinal remedies are slow,

daily applications of the Oudin current through the same type of non-vacuum eye-electrode will dry up the secretion quicker than anything else that I know of.

In applying diathermy to the ears, I employ pieces of block tin cut in the fashion shown here with a somewhat crescentic opening to permit protrusion of the auricle and having a tongue-shaped piece overlying the tragus and extending into the hollow of the concha. These are made in two sizes, large and small. When it is desired to treat both ears equally, two of the smaller size are employed. When it is desired to localize the heating effect more in one ear, the smaller plate is placed on the side to be treated and the larger on the opposite side.

These treatments I regard as of invaluable assistance in drying up acute and chronic suppurative ears. But I believe a bigger achievement is the result obtained in treating cases of deafness when used in conjunction with the positive static breeze.

Types of deafness most greatly benefited are those of subacute or chronic catarrhal otitis media type where there is blockage of the eustachian tube combined with the lack of luster, absence of the cone of light and increased opacity and sclerosis of the ear drum. It is surprising how patients whom I formerly regarded as hopeless now progress from a condition wherein they can hear only the whispered voice on contact to a point where they will hear the whispered voice the length of a twenty-foot room.

In treating the nose a long vacuum electrode of the type you see here is a standard piece of apparatus. The success of the treatment depends on the degree of heat that can be produced and which is pushed to the limit of the patient's tolerance. The Oudin current is employed. I use the treatment with this electrode as a follow-up in all those nasal conditions which I mentioned as being benefited by the positive galvanic pole.

But the procedure which I value most highly in nose work involving incidentally the use of another of my original contrivances is that intended for reduction of hypertrophied turbinates. The method enables me to apply and exactly control the play upon the entire length of the turbinate of a shower of Oudin sparks, so that there results a ribbon like band of fulgurated tissue which separates after the usual length of time, leaving the turbinate much reduced. The ease

of the method and the absence of subsequent inflammatory reaction and swelling make it easily preferable to the old method of hot wire cauterization.

The appliance as you see here is fashioned out of three parts:

1. A piece of heavy rubber insulating material serving as a handle and encasing
2. A piece of seven-stranded radio aerial wire acting as a conductor, part of which is further incased in
3. A piece of thin fiber tubing provided with a slit-like opening about an inch long near the one end which is flattened for convenience of insertion into the nose.

A marker is placed in such position that it will just disappear within the nostril when the far end of the slit-like groove corresponds with the posterior end of the inferior turbinate. Thus one avoids fulguration too far back. By continuing to observe through a speculum as the instrument is drawn out the play of sparks controlled under guidance of the eye is carried well to the anterior end of the turbinate.

In the throat when there is present a condition of chronic follicular pharyngitis with hoarseness, irritation and cough keeping the patient in constant misery, I know of no better remedy than the Oudin current forced to the limit of comfort through a vacuum throat-electrode such as you see here.

I will omit for the present any further remarks on the subject of diathermy in the throat as sufficient on the subject will be said when I come to demonstrate and to explain my method of tonsil desiccation on tomorrow afternoon and Thursday morning.

I will also cut short my remarks on static electricity with simply calling attention again to its remarkable efficiency when used as a follow up to diathermy in cases of so-called dry catarrhal otitis media. The positive static breeze is best administered in accordance with Sampson's suggestion, through a DeKraft blue pencil electrode, a sample of which you see here.

Oto sclerosis cases are a tough proposition to treat by any method, although I believe they are also benefited a little.

7 S. Crawford Ave.

DISCUSSION

Dr. E. J. Leigh (Hiawatha, Kans.): I would like to inquire of the Doctor a little further explanation of his technique for catarrhal deafness. Do you use more

than just the electrodes on the outside of the ear? Do you use anything at all on the outside of the ear where there is a refraction of the tympanic membrane?

Dr. Thometz: I use twenty minutes of diathermy and where both ears are involved ten minutes of the positive static breeze to each ear. I then follow that with vibration at the point of the jaw for about thirty seconds to each side of the jaw. Then inflate the eustachian tubes and then make some topical treatment to the nose, sometimes two per cent, silver nitrate, sometimes acriflavine.

Dr. L. M. Turbin (Madison, Wis.): How would you treat the effusion of the middle ear by diathermy?

Dr. Thometz: Do you mean an acute otitis media where the drum is red and bulging?

Dr. Turbin: Yes, sir.

Dr. Thometz: I have had a number of cases wherein I have used diathermy rather than paracentesis where the patient particularly objected to having the ear drum incised and was very much afraid of this maneuver.

I have had quite a number of these cases clear up without need for paracentesis. In this case you can either use the small piece of block tin on the side that has the ear involvement and the large on the opposite side or use a non-vacuum electrode of a type I haven't got here which will fit directly into the ear, a curved, thin electrode which can fit well into the external canal.

Dr. Turbin: Would you use your fingers?

Dr. Thometz: I don't like to use the fingers as conductors because they heat up too much. It is rather uncomfortable and therefore you can't get near as much heat as you can with these contrivances.

Dr. Turbin: How long a treatment would you give for that same condition?

Dr. Thometz: About twenty minutes, as much heat as they can stand. With these electrodes I have used as high as 800 or 1,000 milliamperes. The patient's tolerance, however, is the best guide.

Dr. Turbin: How often would you give the treatment?

Dr. Thometz: Once a day as long as the acute condition existed and I would follow by inflation. Another thing I would use in addition to that is therapeutic light and heat, I give the patient a hand therapeutic lamp and tell him to use it at home. This helps along the cure.

FALSE, ACUTE SURGICAL ABDOMEN ON AN ALCOHOLIC BASIS*

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The term "Acute Surgical Abdomen" is used to designate a clinical syndrome consisting of acute abdominal pain, muscular rigidity, nausea

and vomiting, leucocytosis and often "shock," the differential diagnosis lying between two or more conditions which require prompt surgical treatment. "Acute Surgical Abdomen" is simulated by a variety of non-surgical conditions, among the better known of which are various abdominal lesions; but even supradiaphragmatic pathology, such as pneumonia, pleurisy, pericarditis, angina pectoris, dissecting aneurysm of the thoracic aorta and throat infections as described by J. Brenneman,¹ sometimes closely resemble the above syndrome.

It is the purpose of this paper to relate our experience with recent cases of acute, alcoholic intoxication or so-called "Moonshine Poisoning" in which severe abdominal pain, vomiting, muscular rigidity, "shock," fever and leucocytosis were among the outstanding features. Some of these clinical pictures so closely resemble "Acute Surgical Abdomen" that operation was seriously considered when the patients were first admitted to the hospital.

The subject is of further interest in view of the frequency of increased medico-legal importance which alcohol poisoning has attained in recent years.

An extensive literature has accumulated, dealing chiefly with the effects of acute poisoning by methyl alcohol. Thus the marked affinity of methyl alcohol for the tissues of the optic nerves has been described by S. D. Hubbard,² S. L. Ziegler,³ A. Comora,⁴ S. Barbash,⁵ R. P. Albough,⁶ F. A. Morrison,⁷ J. M. Downing⁸ and V. R. Hurst.⁹

Similar effects may be produced by inhalation as described by A. A. Eisenberg.¹⁰ C. Norris¹¹ pointed out that methyl alcohol is slowly and only partially oxydized in the animal body and is broken up into substances more poisonous than the original methyl alcohol, namely, formic acid and formaldehyde. G. A. Harrop and E. M. Benedict¹² reasoned that the formation of formic acid results in acidosis and that alkalization should form an important part in the treatment. The fact that methyl alcohol is secreted for several days into the stomach and intestines led these authors to recommend also daily lavage of the stomach and bowels.

Many other features of present day acute alcohol poisoning have been carefully studied; but comparatively little has been said about the abdominal symptoms which occasionally may domi-

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nate the clinical picture. R. Isaacs¹³ and A. O. Gettler and A. V. St. George¹⁴ describe abdominal symptoms in their cases and N. S. Betts¹⁵ reported a case in which the abdominal symptoms were so severe that acute pancreatitis was suspected. It is this comparative paucity in the literature of cases with prominent abdominal findings which leads us to report the following series of cases which simulated perforated peptic ulcer, acute appendicitis and peritonitis sufficiently to be so diagnosed by various physicians who examined them.

The first case simulated acute perforative peritonitis so closely that the attending surgeon diagnosed ruptured gastric ulcer in addition to acute alcoholism. The fact that the patient was brought directly from jail to the Cook County Hospital added to the difficulties of diagnosis since alcohol is usually not obtainable in quantity in our jails.

Case 1. The patient, J. G., male, age 33, was admitted to the surgical service of the Cook County Hospital on December 16, 1922, with a diagnosis of ruptured gastric ulcer. The patient was suddenly seized at eight o'clock of the evening before admission with acute, severe pain in the upper abdomen, causing him to double up. The pain was severe and continuous. There was nausea but no vomiting. There was no history of previous abdominal pain or digestive disturbances but the patient was neither attentive nor responsive.

Examination revealed a patient in great pain. The temperature was 99.6 and the pulse 96. There was marked tenderness and rigidity over the epigastrium and to a lesser degree over the right and left lower quadrants of the abdomen. Peristaltic sounds were practically absent over the entire abdomen but the liver dullness was not diminished in area. Further examination failed to reveal abnormal findings elsewhere. The white count was 14,300 and the urine was negative. A diagnosis was made of acute surgical abdomen, probably ruptured gastric ulcer and the patient was ordered prepared for immediate operation. The patient, however, refused to sign an "operation permit" in spite of the fact that he had been made aware of the possible dangers of delay. Next morning, without operation, he felt better, the tenderness was less marked and the rigidity and fever were gone. The patient then made the statement that he had taken ten drinks of "Moonshine" while in jail, about three hours before his pain began, but he "was afraid to tell" this sooner, while the police were still present. He rapidly improved under medical treatment (oleum petrolatum and liquid diet) and was well in five days. Further physical and x-ray examination of chest and abdomen were employed but nothing pathological was found. Attention should be called to the fact that the patient's implied accusation against the jail authorities is not to be taken too seriously.

The second case was considered to be one of empyema of the gall bladder with complicating broncho-pneumonia; but the autopsy, chemical examination of the urine and the subsequent history from the relatives suggest rather an acute toxic hepatitis due to alcohol.

Case 2. The patient, J. S., male, aged 37, was admitted to the Cook County Hospital on November 9, 1923, in a semi-delirious condition and so no adequate history was obtained. Examination revealed a deeply jaundiced patient who appeared acutely ill and was constantly moaning and hiccoughing. It was not noted that his breath was definitely alcoholic. The temperature was 101.4, pulse 120 and respirations 30. The pupils were small and reacted sluggishly to light. The sclerae were deeply jaundiced. Examination of the thorax revealed dullness over the lower aspects of both lungs with tubular breathing over these areas. Nothing abnormal was found in the heart. There was marked tenderness in the right upper quadrant of the abdomen and an indefinite tender mass which was considered to be the gall-bladder was palpated in this region. The liver appeared somewhat enlarged. The systolic blood pressure was 95 and the diastolic 80. The knee jerks were normal. X-ray examination (Dr. R. T. V.) showed patches in the lungs which were interpreted as atelectasis or bronchopneumonia. The urine showed some albumin, considerable bile, but no casts or sugar. The blood showed 5,000,000 red cells and 19,600 whites. The differential count showed 92% polymorphonuclears. The Wassermann reaction on the blood was negative. A diagnosis of empyema of the gall bladder with complicating pneumonia was made but the patient was considered too ill for operation. Death occurred in two days and the autopsy performed by Dr. H. A. Singer revealed the following: acute bilateral confluent bronchopneumonia, acute parenchymatous degeneration and fatty changes in the liver, acute hyperplasia of the spleen and chronic, localized fibrous pericholecystitis. The gall bladder was of normal size and showed no other pathological changes than those mentioned. Chemical examination of the urine showed the presence of ethyl alcohol.

The third patient was admitted to the hospital with a diagnosis of a perforating or possibly ruptured gastric ulcer, but chiefly the fact that the onset of the pain was not quite typical led us to delay operation in spite of the fact that examination revealed many of the features of "Acute Surgical Abdomen."

Case 3. The patient C. K., male, aged 30, was admitted to the surgical service of the Cook County Hospital on March 4, 1924, with the diagnosis of ruptured gastric ulcer. He complained of severe, cramp-like pain in the epigastrium which came on abruptly five hours before admission to the hospital. The pain began in the left lower part of the chest and spread rapidly to the epigastrium and especially to a point about two and a half inches above the navel. Vomiting

occurred three hours after the pain began and recurred once. The bowels moved on the morning of the day of admission. He had had several similar attacks of epigastric pain previously which were diagnosed "gastritis." He had no pain after meals and never any jaundice.

Examination revealed a patient acutely ill and in great pain. There was marked tenderness and rigidity in the upper abdomen, especially on the left side. Peristalsis was not audible but tympanites was absent. Nothing abnormal was found in the heart or lungs and the pupils reacted well to light. The liver dullness was not obliterated. Nothing abnormal was found on rectal or genital examination. The urine was negative. The white blood count was 12,500, temperature 98, pulse 88 and respirations 20. Operation was deferred in view of the atypical onset but the patient was surgically prepared for prompt operation in case it should be needed. He was treated medically, mineral oil and liquids, and was again examined next morning. He then showed disorientation and confusion and rapidly developed a delirium tremens, from which he ultimately recovered without further abdominal symptoms.

The next case was admitted to the surgical wards of the Cook County Hospital with a diagnosis of acute appendicitis. He was not immediately operated upon, partly because he gave a history of having taken considerable whisky for two weeks, although none for the preceding five days and we had our previous experience with these cases acutely in mind. The subsequent course of his illness again emphasizes the importance of keeping in mind the possibility of alcohol poisoning as a cause of the syndrome generally recognized as "Acute Surgical Abdomen."

Case 4. The patient, M. K., male, aged 38, was admitted to the surgical service of the Cook County Hospital on March 19, 1924, with the diagnosis of acute appendicitis. He stated that he had been feeling chilly for about 24 hours before admission to the hospital. Eight hours later, a sudden, severe, abdominal pain developed in the right lower quadrant of the abdomen. He felt less pain when his legs were drawn up. Coughing increased the pain. There was nausea at the onset but no vomiting. The bowels moved daily.

Examination showed a patient who appeared to be in great pain. His pupils reacted to light. Nothing abnormal was found in the heart or lungs. There were marked tenderness and rigidity in the lower right quadrant of the abdomen. The liver and spleen were not palpable. The reflexes were normal. The systolic blood pressure was 124 and the diastolic 80. The white blood count was 13,600 with 86% polymorphonuclears. The urine was negative. The temperature was 98, the pulse 96 and the respirations 20. Expectant treatment was instituted because the patient was known to have been a heavy drinker and because past experience with "alcoholics" had taught us to be cautious. Medical

treatment was instituted and the patient was watched closely for further indications for operation. The symptoms rapidly disappeared and subsequent examination failed to reveal further abnormal findings.

The foregoing series of cases illustrates the clinical pictures which may be produced by acute alcoholism when the gastro-intestinal tract bears the brunt of the acute poisoning. We hope we have conveyed the impression that these cases closely resemble clinically the condition known as "Acute Surgical Abdomen." The clinical features which add to the difficulties are the leucocytosis, "shock," severe abdominal pain and tenderness and rigidity of the abdominal musculature. The history of an alcoholic debauch was not always obtained promptly in these cases because some of the patients deliberately made misstatements and others were in no condition on hospital admission to give a coherent account of the onset of the illness. An alcoholic odor to the breath, when present, is not decisive as the patient may have been given a drink to ease pain before coming to the hospital. Furthermore, a history of acute alcoholism frequently obtains with acute perforation of a peptic ulcer and sometimes with other acute abdominal conditions. Reluctance of the patient to go into details of symptomatology or manifest attempts at concealment in connection with his illness may put the physician on his guard. An important aid, too often neglected by the surgeon, is the use of the x-ray in acute abdominal conditions. In simple alcohol poisoning x-ray examination is negative. But in other patients with abdominal pain the x-ray may reveal pathological conditions in the chest, "gas patterns" in the abdomen in ileus, spontaneous pneumoperitoneum due to perforation somewhere in the gastro-intestinal tract and a variety of other interesting findings.

Resume:

1. Acute alcohol poisoning may produce a clinical picture which very closely resembles that of perforated peptic ulcer, appendicitis or empyema of the gall bladder and is likely to be mistaken for those conditions commonly grouped under the diagnosis of "Acute Surgical Abdomen."

2. The confusing manifestations in these cases of acute alcoholism are leucocytosis, "shock," abdominal pain and rigidity of the abdominal muscles. The difficulties in diagnosis actually

may be increased rather than diminished by the clinical history.

3. Errors in diagnosis in these instances may be avoided largely by keeping their possibility in mind. The fluoroscope may help. Physical examination and clinical experience are, of course, our chief reliance.

4. The analysis by the Coroner's chemists of gastric contents from our acutely alcoholic patients at the Cook County Hospital in recent years has shown the presence usually of irritant poisons in easily detectable amounts. Among these are methyl alcohol, phenol, lysol, mercuric chloride, fusel oil and various other gastrointestinal irritants. We are, therefore, inclined to ascribe the abdominal symptoms which we have noted to these denaturing agents rather than to the ethyl alcohol itself.

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PREVENTIVE SURGERY OF THE PANCREAS AND BILE DUCTS*

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In discussing surgery of the bile ducts and pancreas, it is my purpose to take up several points upon which I have made experimental, anatomical, and clinical studies in the last few years. I wish to emphasize, particularly, the necessity for early surgery of the bile ducts in the prevention of complications and in the treatment of pancreatitis, and cysts of the pancreas. The frequency of gallstone pathology has been quite striking in a study which I have made of cases of acute pancreatitis and of pancreatic cysts.

The commonly accepted theory of acute pancreatitis is that it is the result of one of the following causes: a reflux of normal or altered

bile in the pancreatic duct; hematogenous infection; extension of infection along the lymphatics from surrounding viscera; ascending infection or a reflux of ferments from the duodenum; direct extension of infection or rupture of adjacent viscera.

Considering first the sphincter muscle at the outlet of the common bile and pancreatic ducts, we find that its action was first noticed by Glisson (1597-1677) in the 17th century, who observed that the orifice would close after the removal of a probe. It was not until 1887 that Oddi¹ demonstrated the existence of a true sphincter muscle independent of the intestinal wall. Helly² found that these fibres usually formed a figure 8 with the large ring around the bile duct and the smaller around the pancreatic duct. Hendrickson³ showed that there was no muscle between the ducts in a few cases, but that the sphincter surrounded both of them.

The common bile and the chief pancreatic ducts usually join in the duodenal wall and open into an ampulla, which opens into the duodenum. After studying the varied anatomical relations at the outlet of the two ducts, it has seemed to me⁴ preferable to group their terminations into three chief types for surgical consideration: 1. An ampulla type, in which the two ducts open into one ampulla; 2. A type with separate openings into the duodenum, in which the ducts may be divided by a thin septum, or may be widely separated at their outlet, or where there may be an absence of the duct of Wirsung; 3. A type with the junction of the two ducts above the sphincter or entirely outside the duodenal wall.

It is easy to see how the obstruction at the outlet in groups 1 and 3 might divert bile up the pancreatic duct or the reverse, with pancreatic secretion passing up the bile duct. Type 1 is the most common condition, while type 3 should be considered unusual. Type 2 occurs frequently enough to be considered normal. A study of the relations at the outlet of these two ducts should be done in all cases of pancreatitis coming to necropsy. I believe that this will add light to the theories of pancreatitis.

Baldwin⁵ in a study of 90 human specimens, found that in 25.8% of them the ducts opened separately into the duodenum, while in 74.2% there was a common ampulla. Opie⁶ reported a diversion of bile into the pancreatic duct anatomically possible in only three out of ten in-

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dividuals from his study of the ampulla and the relations of the two ducts. Mann and Giordano⁷ have reported it possible anatomically in only 4.5% of cases from their observations. Recently Cameron and Noble⁸ were able to impact a care-



Fig. 1A.—Roentgenogram showing filling of the bile ducts following a barium meal one year after a direct anastomosis of the hepatic duct to the duodenum, with excision of a congenital cystic dilatation of the common duct. The patient, formerly with severe symptoms, is symptom free two years after operation.

fully selected biliary calculus in the ampulla of Vater, and then produce a reflux of fluid up the pancreatic duct in 65% of 100 specimens.

Claude Bernard⁹ first produced acute pancreatitis in animals in 1856, following the injection of a mixture of bile and sweet oil into the pancreatic duct of a dog. Other substances which may produce it, are, gastric juice, duodenal contents, weak solutions of acids and alkalies, fatty acids and sodium soaps of fatty acids, bile and bile salts, several bacilli or their acid products, diphtheria toxin, papain ferment, and trauma when combined with occlusion of the bloodvessels.

Gallstones or inflammation of the gallbladder are a definite predisposing cause to pancreatitis, and are present in a majority of cases of acute pancreatitis. In some cases at necropsy gallstones have been found in the ampulla. Zoepffel¹⁰ found that there was acute necrosis of the pancreas in 10 of 150 operations on the bile ducts. Three cases, operated on early, recovered, while those operated on later, died.

I recently reviewed a series of 67 cases of acute pancreatitis. There was gallbladder dis-

ease present in 38 of the 67 cases, or 56.7%. There were gallstones in 25 cases, or 37%, 14 of them being women, 11 men. They were found in the common duct four times, being impacted in the ampulla twice. Inflammation of the gallbladder was present in 21 cases, or 32%. It was associated with stones in 8, and without stones in 13 cases. Inflammation of the gallbladder was present almost equally in males and in females.

There were 36 males averaging 44 years, and 31 females, averaging 41 years of age. The onset of pancreatitis was acute in 62 of the 67 cases, the mortality being 56.7% of all the cases.

This frequent association of disease of the biliary tracts, is also present with chronic pancreatitis. Barling¹¹ found gallstones present in all subacute cases of pancreatitis. He believes it is infectious probably from extension along the lymphatics or the ducts. Deaver¹² has advocated the theory of extension of infection along the lymphatics, but the acute type has not been produced experimentally. Graham and Peterman¹³ offer considerable experimental evidence of the extension along the lymphatics in certain forms of chronic pancreatitis.

A certain group of hemorrhagic and perhaps other cysts of the pancreas are the result of acute or chronic pancreatitis. Hemorrhagic cysts resulting from acute pancreatitis occurred twice in my collected series. Retention cysts are



Fig. 1B.—The bile ducts are filled more peripherally. There are two dilated pouches present in the bile ducts from the left lobe of the liver. Roentgenograms taken after 24 hours showed practically no retention.

in many instances due to gradual obliteration of the ducts and interference with absorption in chronic pancreatitis. (Senn¹⁴). Judd¹⁵ reports finding gallstones in 12 out of 41 cases of pancreatic cysts, with evidence of gallbladder disease in five others. In my review of 19 cysts, there were gallstones in but one. However, in this case there were many stones in the common duct, with a complicating acute necrotic pancreatitis.

The causes of acute necrotic pancreatitis in a large number of the cases without stones or clinical evidence of inflammation of the liver or gallbladder may be due to the action of the sphincter muscle or of inflammatory swelling in diverting bile into the pancreatic duct. Archibald¹⁶ has been able to produce various grades of pancreatitis as the result of the sphincter alone, by increasing its resistance with the injection of acid solutions into the duodenum and by increasing the pressure of normal or altered bile in the ducts.

It is not infection, primarily, which produces the changes in the pancreas since a majority of these are sterile, but probably an early chemical cytolytic change due to bile with secondary digestive changes. (Tatum,¹⁷ Bradley & Taylor¹⁸). Brocq¹⁹ has shown that acute pancreatitis will result from the injection of bile into the pancreatic duct in animals only when done two to three hours after a full meal.

Hypertonicity of the sphincter may result from local or long nerve reflexes. Obstruction at the outlet without stones or spasm may come from a tumor or inflammation of the ampulla or the surrounding structures. Opie says that the somewhat greater frequency of pancreatic necrosis in men, whereas gallstones are more common in women, is perhaps due to the greater ability of the gallbladder in stout muscular men to drive bile from the gallbladder into the pancreatic ducts during the passage of a gallstone from the diverticulum of Vater. The action of the gallbladder, I believe, is largely passive. However, the force of the abdominal and other muscles during vomiting or straining very markedly increase the intrabiliary duct pressure as I have observed experimentally. The increased abdominal muscle development might explain the greater frequency of pancreatitis in the male.

Ballin and Saltzstein²⁰ believe that most cases of acute pancreatitis follow cholecystitis rather

than cholelithiasis because while gallstones are four times as frequent in women as in men, they found pancreatitis three times more frequent in men than in women. This proportion did not exist in my study of pancreatitis cases, since gallstones and inflammation of the gallbladder occurred almost equally in both sexes.

There is a wide variation in the resistance of the sphincter to the outflow of fluids from the bile ducts in animals. Archibald²¹ found the resistance to be 500 to 650 mm. of water. Mann²² found the resistance to be more variable but that it was rarely over 100 to 150 mm. of water. In a series of 25 dogs, I⁴ found the resistance of the sphincter to average between 100 and 250 mm. of water. It was frequently as low as 50, or as high as 250 mm. In one case, it was 580 mm. This tonicity may be increased by the injection of HCL solution, adrenalin, and certain other drugs into the duodenum. Archibald found it to be increased by stimulation of the vagus and the central end of the sciatic, but not by stimulation of the splanchnics. The tonicity may be reduced by the application of a 25% solution of magnesium sulphate. In my series of animals it reduced the resistance of the sphincter about 80 to 100 mm. of water. The results seemed the same with either the gallbladder or the common duct connected with the manometer. My findings indicate an absent or negligible muscular contraction of the gallbladder in the relaxation reflex of the sphincter following the application of magnesium sulphate solution. This speaks against the theory of contrary innervation as being an active factor in the expulsion of bile. The muscular activity of the diaphragm and abdominal wall should be considered as factors in the normal evacuation of the gallbladder. The relaxation of the sphincter following the application of magnesium sulphate solution was transient and never complete. This fact is important in the application of this reaction to the treatment of impacted stones in the lower end of the common duct, because in spite of complete muscular relaxation, many stones would remain impacted by other structures.

Ascending infection may produce acute necrotic pancreatitis. The injection of the colon bacillus produces a fulminating type, experimentally. A reflux of duodenal contents up the chief or lesser pancreatic ducts may also produce acute pancreatitis. Carnot²³ produced it by passing a

thread into the duct and then irritating the duodenum with eroton oil. Hess²⁴ produced it by fixing a funnel-shaped cannula in the duct and obstructing the duodenum below it. There are clinical cases of Gerhardt²⁵ and König-werth²⁶ of acute pancreatitis with stenosis of the duodenum below. Ascending parasites may produce an acute pancreatitis by obstructing the pancreatic ducts, by carrying the infection and perhaps activating the ferments. Recently two clinical cases^{27 28} have been reported where the duct was obstructed by *ascaris lumbricoides*.

One animal on which I operated died from obstruction of a rubber tube, which had been passed from the duodenum into the common duct by a round worm. In three other cases, with tubes placed similarly, two had a mild hepatitis, but cultures from the gallbladder were negative. Some reports^{29 30} show an almost constant infectious hepatitis following experimental anastomosis of the gallbladder to the stomach. Following one reported series³¹ of experimental anastomoses of the pancreas to the intestine, there was shown to be an absence of ascending infection. Stasis is to my mind a large factor in promoting ascending infections not only of the bile tracts but elsewhere. Perhaps in some clinical cases there is a duodenal stasis, and inflammation of the papilla may produce first a stasis and later dilatation and infection in the bile and pancreatic ducts.

Stasis of the bile tract may be due to various diseased conditions such as functionless gallbladder, kinked or strictured ducts and spastic sphincter, although there may be no serious trouble until infection gains a foothold. Clinically, I think that the dangers of ascending infection of the bile duct where there is proper drainage without regurgitation from infected zones, have been overestimated. I wish to illustrate this point by citing a case³² of resection of a congenital cystic common duct in which I did an anastomosis of the hepatic duct to the duodenum. The patient has had no symptoms since the operation over two years ago and has been completely relieved of severe obstructive symptoms with jaundice present before operation. In this case of hepatico-duodenostomy I have been able under the fluoroscope to see barium pass through the opening from the duodenum and spread out in the liver branches of the bile ducts. This occurred after a barium meal at two separate examinations, one a month after and one a year after

operation. I believe this reflux must also occur after ordinary meals. There was no prolonged barium stasis in this case since there was only a trace seen at the end of 24 hours. In a similar condition³³ where there was biliary stasis with regurgitation of food, fatal ascending infection of the liver has resulted.

The immediate efforts of a cholecystectomy, associated with a spastic sphincter, increased bile duct pressure, or perhaps infection, may predispose to a pancreatitis. In the later effects after cholecystectomy it has been observed that the bile ducts may dilate with subsequent loss of resistance of the sphincter (Judd³⁴). or that the bile ducts may dilate with an action similar to the gallbladder and maintain a continent sphincter; or, third, that there may be little or no dilatation of the bile ducts with an incontinent sphincter (Rost³⁵).

Cholecystectomy is thought by some to be curative in certain cases of pancreatitis by producing a loss of sphincter resistance (Judd³⁴). However, in producing this dilatation at the outlet, there must be either an increased or persistent intraduct bile pressure, which, under experimental conditions, has produced a pancreatitis. Unless the dilatation of the sphincter could be due to other conditions, such as a paralyzing nerve reflex, it would seem that the effect of a cholecystectomy might produce or aggravate a pancreatitis. The gallbladder, unless changed by inflammation in its walls, or obstruction of the cystic duct, may serve as a protecting mechanism. On account of the relation of the pancreatic to the bile duct, certain cases would be more susceptible for a reflux of bile, while in others it would be anatomically impossible. In the presence of infected or altered bile, the dangers of an acute pancreatitis would be increased, following a cholecystectomy. The possibility of this complication would be lessened after the subsidence of the infection and the dilatation of the sphincter, unless one considers a possible duodenal reflux of intestinal contents. The occurrence of a primary acute pancreatitis complicating cholecystectomy seems to be rare. However, in a series of 172 cholecystectomies, for inflammatory disease or calculus of the gallbladder alone, Whipple³⁶ found that the only death was the result of acute pancreatitis developing the second day after operation. In a series of 230 cases operated on for disease of both the biliary

tract and the pancreas there were 25 postoperative deaths, 15 of which showed pancreatic inflammation or tumor. There were symptoms of pancreatic asthenia noted as a postoperative complication in 18 of the series of 230 cases. The onset was usually the second to the ninth day, and the course averaged 12 days. Eight of these cases died. In all but one there proved to be a pancreatic lesion. Most of these cases had had a cholecystectomy done, but in some cases there had been a drainage of the common duct.

It is at present believed that in the presence of a pancreatitis, particularly associated with a biliary tract disorder, one should establish biliary drainage. This may be accomplished in acute cases by drainage of the gallbladder, but if this is removed the common duct may be drained. Judd³⁷ has called attention recently to a group of cases where symptoms persisted after a cholecystectomy but were relieved later by drainage of the common duct. This, he explains, by a chronic inflammatory thickening of the pancreas, which presses upon the terminal portion of the common duct. I believe that if one opens the common duct and finds that the outlet into the duodenum is patulous, external biliary drainage is unnecessary and undesirable, because of frequent secondary infection and the physiological loss of bile. In many cases, it is advantageous to pass a small rubber catheter down the common duct into the duodenum, at the same time that a separate tube is passed up the hepatic duct for external biliary drainage. Experimentally I have produced a dilatation of the sphincter by passing a rubber tube through it into the duodenum and fastening it there for one to two weeks. Clinically, I have put a tube through the common duct into the duodenum a number of times for the purpose of instilling fluids from the outside, following McArthur's³⁸ suggestion. The convalescence has always been remarkably smooth. This tube may also facilitate pancreatic drainage.

In performing a cholecystectomy, I wish to emphasize that there are many dangers of injury to the hepatic artery, its branches and to the bile ducts. From a detailed study³⁹ and from dissections of cadavers, it is evident that one will find some variation from the text-book normal in almost every dissection or operation. The gallbladder may be more safely removed in nearly all cases by the following technic. The dissection is

started at the right side near the lower end of the gallbladder by incising the peritoneum along the liver junction. A line of cleavage is easily formed between the bladder and the liver in the region of the neck and pelvis. This is continued posteriorly to the left side of the gallbladder, where I usually make an opening through the peritoneal covering which has been pulled away from the bladder. The lower end of the gallbladder, including a low hanging pelvis, is freed posteriorly in order to rotate the bladder to the left. This exposes the junction of the neck with the cystic duct, which is followed down to the common duct. The cystic duct is dissected away from its anterior peritoneal covering, in which the cystic artery or its branches usually spread out as they pass to the gallbladder. The duct is cut, and traction on the upper end partially enucleates it and the lower end of the gallbladder from the peritoneal band which contains the cystic artery. This exposes the branches of the cystic artery as peripherally as possible where they may be more safely caught and ligated. The lower end of the gallbladder is now freed by cutting across this band and the dissection is completed, from below up. This method most surely prevents injury to normal or anomalous ducts or arteries. There is a dry field with practically no danger from a torn or retracted artery, since the branches are ligated peripherally while still attached to the peritoneum.

As a matter of routine, I leave a small soft rubber drain but no gauze after cholecystectomy. The drain should not be placed against the bile ducts or have a sharp tip. It is shortened daily and removed usually by the fourth day. This drain is a factor of safety and the wound closes by primary union. During vomiting the intra-duct bile pressure is raised and may force open a carefully ligated cystic duct stump. At least once in a while profuse biliary drainage occurs in spite of careful ligation. The bile duct closes usually in 4 or 5 days and the drain may be removed as usual. There is often a certain amount of bloody wound secretion and sometimes a little bile from the raw surface of the liver. I believe drainage of this secretion prevents adhesions and lessens toxemia and the danger of infection.

Conclusions: 1. Gallstones or infection of the gallbladder are present in over one-half of the cases of acute pancreatitis. Early operation for stones or inflammation of the gallbladder has a

low mortality and is the surest preventive of many hepatic, pancreatic, and other serious complications.

2. Early, well-chosen, surgical treatment will conserve the protective mechanism of the bile tracts.

3. Both the operative and non-operative treatment of late hepatic and acute pancreatic complications are associated with a distressingly high mortality.

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MODERN CONCEPTION OF STUTTERING AND STAMMERING*

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The disorder of speech called stuttering and stammering has been known, according to Chervin,¹ at least since the days of the Egyptian hieroglyphies.

In spite of this, there is as yet no concensus of opinion concerning its nature and treatment even among those who have given the subject prolonged and special study and consideration.

This is true not only of the lay-workers grappling with this problem, including a majority of the schools for stutterers and stammerers, but it is also true in large measure of physicians, neurologists and psychologists who have devoted special attention to its solution.

It is generally admitted that the problem of correct speech, and speech defects in particular, especially of stuttering and stammering, has not received the amount of scientific attention and study and of practical handling in our own United States that has been given to it in Germany, and of which it is truly deserving. However, it is gradually receiving more and more attention in our schools and universities.

Of the functional speech disorders, stuttering and stammering are the most serious and most disabling.

This disorder not only causes the individual so afflicted to undergo repeated and trying mental struggles, mortification and discouragement, but may so handicap otherwise deserving and capable individuals that they may regard their lives as failures and indeed have their careers blocked because of the inability to successfully compete with their average fellowmen in occupations and in social relations in which speech plays an important role.

It is especially when we consider the frequency of this disorder that the need of intensive study of the nature and proper treatment for this condition is fully appreciated. Conrad,² in 1904, gathered statistics from 87,440 children from six cities in the United States—Cleveland, Milwaukee, Louisville, Albany, Springfield, Mass., Kansas City, Mo. Of this number, 44,754 were boys and 42,686 were girls. He found 2.46%

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with speech defects and 0.87% with stuttering and stammering. Of the boys, 1.25%, and of the girls, 0.47% stuttered or stammered.

German recruiting officials found 6.66 men per one thousand were stammerers.³

Of 5,000 children in Madison, Wisconsin, below high school age, Smiley Blanton⁴ found 5.69% with speech disorders, with 0.72% stammerers. On the basis of 1400 members of the freshman class (with a total of 2,240) at the University of Wisconsin, personally examined by him, Blanton⁴ reports finding 18.13% with speech defects and 5.6% with stammering. Of the latter, a large proportion had a slight but nevertheless handicapping defect.

Miss Pauline Camp⁵ personally surveyed 9,387 school children below high school age in Grand Rapids, Michigan, and reported 13% speech disorders, 2.64% stammering.

J. E. Wallin,⁶ in a survey of 89,057 pupils, reported finding 2.8% speech disorders, 0.7% stammering.

It has been claimed that there are approximately one-half a million to one million persons with the more severe speech defects in the United States. If this be true, as has been mentioned by others, the number of speech defectives in the whole country is considerably in excess of the number of the blind, the deaf, and the dumb, the insane and the feeble-minded.

It has been estimated that there are from 200,000 to 300,000 stammerers and stutterers in the public schools of the United States. Statistics seem to indicate that approximately 1% of school children, if not of the general population, are afflicted with this disorder.

Without endeavoring to exaggerate the frequency of this condition, it is plain from the above statistics that it is much more common than the average person believes.

Definition of the Terms Stuttering and Stammering.—The terms stuttering and stammering are used in so many different senses by different writers that, in order to avoid confusion and misunderstanding, I shall first define exactly what I mean when I use these two terms.

Some use the term stammering for defects of speech due to anatomic anomalies, such as lisping, and stuttering for the speech disorder discussed in this paper.

Others use stammering for trouble with consonants, and stuttering for trouble with vowels.

Some writers use the term stuttering for any sudden, spasm in speech or hesitation in speech, while the word stammering is reserved for conditions which are so pronounced that the individual shows external evidence of his internal struggle. In other words, such writers would reserve the term stuttering for the minor, and the term stammering for the more exaggerated form of this disorder.

Finally there are those who use the terms stuttering and stammering synonymously and interchangeably, both meaning the same thing and applying alike to the slighter and more marked forms of this disorder. In this paper the terms are used in this sense.

We may define stuttering or stammering as a recurrent transient inability to pronounce a word or syllable or sound, as the result of which the individual undergoes an internal or mental struggle to pronounce the word or syllable or sound, often showing evidences of this struggle by external or bodily manifestations of a marked, widespread, and pronounced degree. There may be merely a repetition of the initial sound, letter or word before passing to the next; or a temporary inability to begin the pronunciation of the sound, letter or word; or inability to produce sound or articulate speech; or spasmodic action of a part or parts of the vocal apparatus from the diaphragm to the lips. In intervals between these spasmodic attacks, the individual has perfectly normal speech.

Current Erroneous Conceptions of Stammering and Stuttering.—It was at one time thought that stammering or stuttering was organic in origin and nature, and that the real cause of the trouble was peripheral—in the tongue, the lips or the muscles of the mouth. Based on this conception, various surgical procedures were employed to cure this disorder—the use of blisters or cauteries, piercing of the tongue with needles, the cutting of various tongue muscles and even cutting out the wedge-shaped portion from the back of the tongue. This view has now been universally discarded.

Although diseased conditions of the nose and throat, especially enlarged tonsils or adenoids, and obstruction of the nasal passages, may be aggravants of stammering and in some instances seem to have been the cause, nevertheless there is no organic condition characteristic of stammering. Physical obstruction of the air passages

is not the direct cause but it may interfere with clear enunciation or perfect articulation.

There is still quite prevalent the view that the trouble with the stammerer is with his breathing, especially the diaphragm, or with his vocalization, or with his articulation. Based on this conception, there have been evolved various complicated series of exercises which have for their objects the correction of the defects in the attainment of proper control of the breathing apparatus (of the diaphragm and other muscles which have to do with breathing), of the larynx or voice box (which has to do with vocalization or sound production), and of the throat and mouth (which have to do with articulation or speech production). It is being admitted by more and more students of this work that disturbances in the speech apparatus are the manifestations but not the cause of stammering.

Bleumel⁷ has propounded the theory that stammering is due to what he calls transient auditory amnesia, and Swift⁸ considers the cause to be visual asthenia. Bleumel, therefore, regards poor auditory imagery as the cause, while Swift inclines to poor visual imagery. Both of these writers contend that before producing a sound, we have, in our minds, an image (auditory according to Bleumel and visual according to Swift) of that which we are about to say. In the stammerer, they believe, this image is weak, and as a consequence the memory for the sound, syllable or word which they are about to say is too feeble for a proper connection to be made with the motor speech apparatus. Stammering is the result. The treatment recommended by these writers consists of efforts or exercises to increase the auditory and visual imagery respectively.

In the first place, it is not true that there is a visual or auditory image preceding speech. In the second place, even if it be true that while stammering the auditory and visual image is weak, the evidence is quite conclusive that this is not the cause but the result of the condition. I will admit that the cultivation of the habit of improving our imagery, especially by visualization, during speech, may be of great aid to the stammerer by distracting him from his disturbed mental state, compelling him to live more fully in that which he is saying, bringing about greater calmness and leading to slower and more rhythmic thinking and speech. But weak imagery,

auditory, visual or otherwise, is not the primary cause of stammering.

Some regard the condition as due to a permanent impairment of the nervous system. There is no evidence to support this.

Others consider it hereditary or congenital. There is no evidence to prove that stammering per se is congenital or transmitted by heredity, although it may be admitted that the condition is more apt to occur in an individual with a congenitally irritable or unstable nervous system, especially in the speech centers.

It is quite generally admitted that the disorder is a trait acquired during the life of the individual.

And more and more the psychological aspect of the nature and origin of this disorder is being granted. According to this view the cause is mental and not bodily. But here too we have some current erroneous views.

Psychoanalysts,⁹ explaining stammering by their well known theories, contend that the condition is due to and is a symbol of an internal, so-called "unconscious" mental struggle of which the individual is entirely unaware and centered for the most part about the sexual instinct. Some writers, adopting a modified psychoanalytic conception, now contend that the stammerer is unconsciously using his speech disorder as a weapon of protection or defense, so that he can escape from what he regards as undesirable situations.

Scripture¹⁰ and Blanton¹¹ contend that the basis of stammering is an unconscious desire to avoid human society, ridiculous speech being used as a means of gaining the desired end. Those who have a keen insight into the mental makeup of the stammerer, or who have themselves ever stammered, know that this is not true, and that the stammerer works with his heart and soul to overcome his defect and will even go through much embarrassment, shame and mortification, yes, even permit himself to be the butt of laughter and ridicule in his insistent, persistent and determined efforts to say what he has in mind, speech defect or no speech defect.

Correct Psychological Conception of Stammering.—It is the psychological approach to the study of the nature, the cause and the treatment of stammering which has now come to the fore. Rudolf Denhart¹² insisted on the mental aspect of stammering as causative as far back as 1890.

Albert Liebmann¹³ has this viewpoint, and Ernest Tompkins,¹⁴ in various communications, has insisted that the stammerer consciously and voluntarily interferes with normal automatic speech and so causes his disorder.

More and more students agree not only that this condition is primarily a disorder not of the body but of the mind, but also that the trouble is based on a disturbance of the emotions. Elmer L. Kenyon¹⁵ has stressed this aspect, especially in relation to child development. He insists that "emotional perturbation is, then, the great fundamental cause of the spasmodic disturbance of speech" and considers the factors responsible for nervous excitability and emotionalism. He refers in particular to the fact that the nervous excitability and emotionalism occur during social relations, that this leads to mental confusion, with an impulsive effort to keep on talking, resulting in a speech panic or stampede.

It has been gradually brought home to those who have been battling with this problem that this disorder is a habit formation which has for its groundwork a certain mental state and a certain nervous makeup. It is to the development of this viewpoint that the remainder of this paper will be devoted.

Stammering, then, is not due to any permanent organic condition of the nervous system, central or peripheral. There is nothing permanently wrong with the stammerer's nerves or muscles of breathing, vocalization or articulation, as is proven by the fact that when not stammering he can breathe, vocalize and articulate normally. It is only while actually in the condition of stammering that disturbances in the control of the muscles of breathing (the chest), vocalization (the larynx), and articulation (the throat and mouth) result. These disturbances are but the result of a certain mental and nervous state with wrong habits and efforts on the part of the stammerer.

This makes necessary a knowledge of:

1. The immediate exciting causes responsible for the onset of stammering.
2. The nervous and mental attitudes and habits which are preliminary to the onset and development of stammering.
3. The normal mechanism of speech and the disturbances resulting during stammering.

CAUSES OF THE ONSET OF STAMMERING

Sex: As a rule, stammering occurs three times as frequently in the male as in the female. Statistics seem to indicate that in children it occurs twice and in adults nine times as frequently in the male as in the female.

Age of Onset: The number of cases increases in percentage from the kindergarten to the primary grades especially when the child begins to read aloud in school. Hartwell found the highest percentage of slight stammerers at the age of eight—or near the time of the second dentition, and the highest percentage of severe stammerers, in boys and girls, at the onset of puberty.

We may agree with Kenyon¹⁵ when he says that in probably more than 95% of the cases stammering begins during the speech developmental period, and in probably more than 99% before the 20th year.

Heredity: Stammering as a disease entity is not inherited or even congenital. However, the nervous system in the stammerer may be hereditarily or congenitally over-irritable.

Exciting Causes: A tendency to nervous and mental excitability and emotionality is present. It may be due to a nervous system unusually irritable from hereditary or congenital causes, or from trauma (accidents or blows), disease (especially slow convalescence), malnutrition, environmental conditions (especially bad home training, poor living conditions with bad parental example). Imitation occasionally may be an immediate exciting cause, but only when the other conditions have already produced a state of nervous and mental excitability.

Accidental hesitancy and stumbling in speech may eventually lead to stammering.

NERVOUS AND MENTAL ATTITUDES AND HABITS PRECEDING ONSET OF STAMMERING

As has been pointed out by many others, the stammerer, as a rule, has no trouble in speaking when alone and not in the company of others, whereas the condition comes to the fore in his attempts in conversing with others, especially strangers or those with whom he does not feel at home. It is, however, also true that the stammerer may have his disorder even when speaking to those with whom he feels perfectly at home and is free from embarrassment or fear. In the latter case, then, it has become a mental and nervous habit. This mental and nervous

habit results primarily from undue nervous excitability and emotionalism. In other words, the individual is characterized by a nervous constitution or temperament. One of the fundamental characteristics of the nervous makeup is the tendency to hurry and rush, both bodily and mentally, so that we have an individual excessively impressionable, reactive, impulsive and explosive. This tendency to hurry and rush is characterized by a state of bodily nervous and mental tension, stress and strain. This shows itself in a more pronounced degree during social contact (that is, during contact with others), especially when speaking, and most usually, as Kenyon¹⁵ has well pointed out, in the speech developmental period, especially if any of the immediate exciting causes be present. There results disorderly control of the mechanism of speech found in the stammerer, as will be explained below.

Mechanism of Normal Speech: Normal speech is the result of the co-ordination of three processes: breathing, phonation and articulation. In the stammerer there is inco-ordination of one sort or another of these three processes.

The speech apparatus consists of the following parts:

(a) The breathing apparatus: This consists of the thorax or chest, with the skin, fat, muscles and ribs; the **diaphragm** (which is the chief muscle of respiration), the lungs, the trachea or windpipe, and the muscles of the abdominal wall.

(b) The vocal apparatus: This comprises the larynx, with its cartilages, its extrinsic and intrinsic muscles and the vibrating vocal cords or bands.

(c) The articulating apparatus: This includes the tongue, the soft palate, the muscles of the cheek and throat, all of which are active; and the teeth and roof of the mouth, which are passive.

(d) The resonating chambers—the mouth, the throat, the nose, the cavities of the head and the facial bones.

There are two types of breathing: 1. breathing for life which is involuntary; and 2. breathing for speech which is voluntary.

The normal mechanism of speech is as follows:

The breathing apparatus supplies the current or blast of air from the lungs. In expiration, by

the action of the diaphragm and the other muscles of expiration the moving column of air starts in motion or vibration the vocal bands or cords when the latter are drawn together, narrowing the opening between them, and in this fashion produces tone, voice or sound. This second process, occurring in the larynx, is called phonation or vocalization, which is dependent upon adduction of the vocal cords. The laryngeal mechanism, then, is the voice or sound producer. The oral mechanism is responsible for speech or articulation or enunciation by modifying the stream of tone or voice. It is therefore the sound modifier and speech producer.

Open vowel sounds are produced for the most part by the laryngeal mechanism. Consonants, in particular explosives, are produced for the most part by the oral mechanism.

Not only must voice be produced with the larynx, but words with the mouth, and vice versa.

There must be co-ordination between the respiratory, laryngeal and oral mechanisms.

Speech Mechanism During Stammering: Stammering is characterized by cramps, asynergies or inco-ordination in the functions of the muscle groups concerned with breathing, vocalization and articulation. In addition to this, there may be an involvement of many accessory movements which become habitual with the individual. Stammerers differ widely from each other and at different times in the particular form of inco-ordination, so that any single type is not especially characteristic of stammering.

There may be respiratory spasm, with an effort to speak at the end of expiration, when the breath is exhausted, or even on inspiration. A laryngeal spasm with spasmodic closure of the glottis may occur. Pharyngeal, labial or other oral spasms may result.

In any case, the fundamental characteristic of stammering is the inability to leave one element and to connect with the following sound.

The stammerer often starts wrong, that is, he assumes and remains fixed in a certain position of a certain part or parts of the speech apparatus from which it is impossible to pronounce the next sound that he is endeavoring to produce. For example, when the stammerer tries to get voice when there is practically no air in his lungs, he is surely struggling to do the impossible. It is the maintenance of impossible

positions for the production of the next sound which is the most characteristic disturbance of the speech mechanism found in stammerers. This view was presented independently at about the same time, by both Martin¹⁶ and myself¹⁷.

The Mechanism of Stammering.—I have elsewhere¹⁷ briefly summarized the mechanism of stammering as follows:

The stammerer, for one reason or another, which I have discussed above, suffers from a state of nervous excitability. This nervous excitability expresses itself, in the stammerer, in a speech disorder. This speech disorder in the stammerer is produced as the result of a definite series of phenomena, all of which are under the direct control of the stammerer himself.

In the first place, there is the tendency on the part of the stammerer to nervous and mental hurry. This results in a state of general excitability, which leads the stammerer virtually to rush headlong and precipitately into speech expression of his thought. So great, so intense, so acute is this haste, that the stammerer, who thinks much faster than he can speak, endeavors to say immediately and practically with one effort that which he has in mind.

As a result of this terrific haste to speak, the stammerer throws one or more portions of his speech apparatus—the articulative, the vocal or the respiratory—into sudden, more or less violent spasm. In his blind rush to say everything in a moment and with one effort, the stammerer may endeavor to pronounce certain sounds from positions of his speech organs which cannot possibly produce those sounds in any human being. He may even begin with the wrong speech muscles and insist on pronouncing, from this false position, the especial sound with which he may be struggling. For instance, he may wish to say the word "big." Now, to pronounce the first letter b, it is necessary to use the lips and the tongue. The stammerer may, in his confusion and excitement and rush, begin by taking a deep breath, holding the deep breath and endeavoring to pronounce the letter "b" from this position. This, of course, is impossible for anybody. No matter how he may struggle to pronounce the sound "b" from this false position assumed by taking the initial deep breath and holding it, the stammerer will fail to do so until he gives up this position, relaxes, and proceeds to use his lips for the pronunciation of this sound.

In the majority of instances, we find that the stammerer begins the word properly but is unable to pronounce the next sound. For instance, when endeavoring to say the word "big," he will usually pronounce the "b" correctly but may be unable to pronounce the next sound represented by "i." This may compel him to repeat the sound of "b" over and over again, or even to go through the most violent efforts and internal struggles observable to everybody, to emit the next sound. In desperation, he may give up, and endeavor to use another word, or, on the other hand, after repeated efforts, he may finally be able to pronounce the next sound. What has happened during the struggle? In his blind rush to say the word "big" in one moment and with one effort, the stammerer begins with a proper pronunciation of the first sound, "b," but insists on pronouncing the second sound, "i," which should come from the voice-box and with his mouth open, while his lips and tongue and entire speech apparatus are still set for the pronunciation of the sound "b." This no human being can do. The sound "i" can be produced only if the mouth is open and not otherwise. As long as the mouth is closed and set for the pronunciation of the sound "b," for example, the sound "i" can never be produced. It is only until by compulsion the stammerer is forced to open his mouth, or in his wild struggles accidentally opens his mouth, that the sound "i" is finally produced.

In the same way the stammerer may begin to pronounce the word "off." The sound "o" must be produced with the mouth partially open. If the stammerer begins with the mouth closed and remains in that state of spasm, the sound "o" cannot be produced by him until the mouth is finally partially opened. Likewise, if the stammerer is successful in pronouncing the sound "o," but maintains the speech position for the sound "o," he cannot by any possibility produce the sound for "f" until his lips are brought together, which is necessary for the emission of this sound. No matter how prolonged or how persistent his efforts, the sound of "f" cannot be produced until he relaxes the speech position for the sound of "o" and assumes that for "f."

It is, therefore, plainly seen that the stammerer tries to pronounce certain sounds from positions of the speech apparatus which cannot possibly produce those sounds in any of us, and

that his efforts in this direction are due to his general excitability and hurry when speaking. As a consequence, the stammerer may maintain a fixed position of the speech apparatus in which only a consonant can be produced, and endeavor, while in this position, to pronounce a vowel, or, on the other hand, he may continue to keep his vowel-producing apparatus in continued action while struggling hurriedly and stubbornly for the pronunciation of a consonant. Since everyone of us must cease consonant-producing efforts in order to pronounce a vowel, or must relax vowel-producing efforts in order to pronounce a consonant, it is apparent that the stammerer, unknowingly, is endeavoring to make his speech apparatus do that which cannot be done by anyone. However, the stammerer unthinkingly persists in these misdirected efforts to do the impossible. In his insistence in this direction, he may bring into play much of his body, and assume, during the act of speaking, various accessory and supporting attitudes and positions, spasmodic in nature, just as he would if he were doing hard work or fighting or running. Finally, in desperation or by compulsion, the stammerer gives up the useless struggle, relaxes a portion of his speech apparatus, which up to that moment has been in spasm and from which he is endeavoring to compel himself to pronounce a sound which requires a different position of the speech apparatus, and only then, often to his great surprise and to the mystery of the on-lookers, is he able to proceed to the pronunciation of the next sound.

It is but natural that the stammerer soon becomes embarrassed and ashamed and develops a fear of speech. This mental state of confusion and fear, with timidity, shame, embarrassment, and a feeling inferiority, the desire to avoid situations in which he may be compelled to speak, and many other consequences are but natural results; and these same mental states increase the stammerer's nervous excitability and lead to even more marked efforts to do the impossible, as has just been explained.

Furthermore, any condition -- malnutrition, overwork, insufficient sleep, etc.,—which enhances nervous excitability, makes his stuttering, or the tendency to stutter, worse.

What we have to contend with, therefore, in the treatment of the stammerer is the condition of nervous excitability and emotionalism, wrong

habits of speech resulting therefrom, and a complex mental state which is quickly added to and greatly exaggerates both of these conditions. A vicious circle results.

HINTS ON THE TREATMENT OF STAMMERING

Stammering is a preventable and curable disorder.

Early diagnosis and treatment will naturally give the best results.

It is a mistake to let this condition develop and depend upon the child "growing out of it."

The essential points in the treatment of such cases may be enumerated as follows:

1. Convincing the individual that he can get well.
2. The desire on the part of the individual to be cured.
3. The patient must be willing to work for his cure.
4. We must establish self-confidence in him.
5. Everything necessary to improve his physical, nervous and mental poise should be done.
6. The nature of his trouble, along the lines indicated above, should be clearly pointed out to him, if he is old enough to understand.
7. We must endeavor to overcome his general tendency to hurry and rush, especially during speech.
8. Slow speech should be insisted upon.
9. He should, when in oral spasm, always open his mouth quickly for the vowel following an initial consonant; close his mouth when he finds himself unable to leave a vowel; relax his respiratory apparatus, or breathe calmly or slowly, or begin over again when he finds himself in a state of respiratory spasm.
10. In some cases special exercises to increase visual or auditory imagery during speech may be helpful by compelling the patient to speak more slowly, and to live more fully in what he is saying, thus producing a state of calmness and poise.
11. In the same way, special exercises for different parts of the speech apparatus, especially vocal gymnastics, may be used with the object of giving the patient greater faith in himself, and in developing a fuller and more resonant voice.
12. Exercises for breath control, vowel lengthening and consonant production, and exercises to improve visual or auditory imagery can-

not by themselves produce the cure of stammering.

13. The stammerer should not look forward to a sudden or miraculous cure but should be willing to work for gradual improvement with ultimate success.

14. In the end his progressive improvement and the permanency of his cure will depend upon his careful carrying out of these principles.

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DISCUSSION

Dr. Elmer L. Kenyon, Chicago, opening the discussion, said:

It was about ten years ago that I read a paper on stammering before this very body. Probably these two papers are the only ones that have been ever read here. I am exceedingly glad, even grateful, that another physician has come forward to attempt to bring improvement in this disorder. I am in the habit of saying to medical students that stammering is one of the great scourges of the human race. People smile at stammerers, but stammerers do not smile.

During the last ten years improvement has been made in our understanding. That improvement has been psychological. The movement which has been going on with reference to mental hygiene is throwing important sidelights upon this disorder. The psychologist, as such, has come into the study, into the attempt to understand this disorder. We who are laryngologists and have been interested in this work for many years, have been very glad to welcome the psychologist into this field, for he can throw light upon it. We, however, saw the psychic origin of the disorder years ago.

I can approve entirely, I mean from my standpoint, the essayist's attitude with reference to the psychology of stammering. Now, I have had one keen fear, being in this work for a long time; that fear has been that the psychologist would not see the importance of understanding the peripheral mechanism of speech, if we are really to reach stammerers in the best way possible. I am very glad that the essayist has not taken the attitude of some psychologists, namely, there was no necessity of knowing the peripheral mechanism of speech in this disorder with detailed understanding.

It is true I do not agree with the essayist altogether with reference to his statements concerning the relationship of the mental side of this disorder to the complex organ of talking, but I am sure that with the mental attitude of Dr. Solomon it will only be a short time when we can entirely agree concerning the peripheral phenomena of stammering.

Now, it is well understood that stammerers stammer only in talking. They do not stammer in walking; they do not stammer in eating; they stammer in talking. The reason is that the peripheral organism of talking is an important factor in determining the effects of the mental upset of the stammerer. In the first place, the organ is a subconscious mechanism. We talk and know not how we talk. It is exceedingly complex; so complex that it requires a hundred muscles, pulling and interpulling, in various degrees, to say the simplest sound. In the third place, it is exceedingly delicate. In the fourth place, it is a mechanism which we use in our relationships to people, when the tendency to stammer, or the tendency to nervous excitement is on. In the fifth place, the act of talking goes back to the very act of thinking itself.

When we talk the muscles of speech interplay lightly and easily, like playing a piano, excepting that the act of talking is much more complex. There is lightness of action and quickness of action. Now comes this mental disturbance and the muscles tense up. That is what stammering is. My conception is this—that in proportion as we can analyze clearly the physiology of the peripheral organ of speech, the application of the mental disturbance of the stammerer to the peripheral speech machine will become quite simple, even non-mysterious. To my mind, Dr. Solomon does not present a true picture of these phenomena. I am particularly interested in seeing that those who are interested in this subject should know the peripheral organ of speech, know it well, because I believe the stammerer should be given a conscious understanding of how he talks. He should know how he talks, and he should know it in the same way that he knows how he writes. In other words, he should have a volitional understanding of what he must do in guiding this complex musculature.

As to the treatment suggested by the essayist, I am quite in agreement with it. I see nothing to disagree with from my standpoint excepting one thing—that I think the peripheral organ of speech should be clearly understood and that the act of talking should be made known to the stammerer so perfectly that he can

take hold of his speech mechanism and guide it to go right when it tends to go wrong.

Dr. D. B. Penniman, Rockford, continuing the discussion, said: I believe this section can count itself fortunate to have presented such an able paper, and such an able discussion. I feel a great deal of sympathy for the man who stammers, for I can do it myself, and I have trouble controlling it at times. When I saw this paper on the program I made up my mind I would hear it.

My mind goes back five years ago when my heart was very mellow towards the boys wearing the khaki. I went down to the train to get my son who had just come from France. He said, "My buddy is here." "All right, take him along." When we got to the place where this boy wanted to get out, he tried to say good-bye to my son and tried to thank me for the courtesy, and he was speechless. My son said to him: "Sing it, buddy, sing it." We drove on and I said nothing. I couldn't chide him for my heart was too mellow. Later I said to him: "That didn't seem just right." He said: "He can sing anything in the world. He would have been a high officer, but he can't give commands. When he would begin to stammer, we would say, 'Sing it, buddy,' and he had no trouble."

I would like to ask why this boy could sing anything he wanted to and couldn't speak it.

Dr. H. B. Boone, Chandlerville, continuing the discussion, said: I would like to ask Dr. Solomon if he knows of any recognized school where the methods that he advocates in his paper are taught.

Dr. D. W. Reid, Jacksonville, continuing the discussion, said: I know nothing medically about this subject. I want to speak of something that has not been spoken of, that is, the heredity feature of stammering. Down in Green County when I was a boy I knew a family in three generations of which there were stammerers. In one generation there were three brothers all of whom stammered. One of them especially, Uncle Jim R., was the worst stammerer I ever met in my life. His facial contortions were horrible to behold. He used to frighten the children when they first saw him talking. Older children could not keep from laughing at him until they got used to him. It was this case of heredity that I want to speak of which of course does not conflict with the congenital theory and the psychic theory of Dr. Solomon.

Now, about the singing. There is evidently something in the rhythmic act of singing that prevents stammering. In singing each word is spaced off in time, and there is no hurrying. Uncle Jim was intensely religious, and was always active in religious meetings. He always regarded it as a special dispensation of Providence that he could sing, pray and exhort without stammering. But his singing, praying and exhorting were all in the same singsong tone. His words, both in singing and praying, were spaced off like trains on a railroad with block-signals to prevent their piling up one upon the other as when he was talking.

It is to this element of rhythm in singing that prevents stammering that I wish to call attention, and to

the heredity element as shown in this case of three generations.

Dr. Elmer L. Kenyon, Chicago, continuing the discussion, said: This gentleman just made a remark that I believe should be cleared up. He intimated that I had one theory whereas Dr. Solomon had another theory. That is not so. Dr. Solomon and I do not differ as to the cause of stammering. We do differ as to the peripheral aspects of the disorder.

Dr. Meyer Solomon, Chicago (closing the discussion): I wish to thank the members for the free discussion that this paper has brought forth. I wish especially to thank Dr. Kenyon for his very friendly and very kind attitude.

The thing to remember is that the cause of stammering is not in the periphery—it is not in the mouth—it is not in the larynx—it is not in the respiratory system. It is nervous and mental hurry which produces the disturbance and just as the disturbance has been produced by the individual so it can be cured by him.

Respiratory exercises, oral exercises or laryngeal exercises are very helpful in certain persons to produce certain results, to give them confidence, to develop a fuller voice. But they do not strike at the root of the trouble and many of the lay schools for stammering have made the error of continuing to treat the periphery when the trouble there is but the end product or end result. I agree that proper knowledge of the normal mechanism of speech should be had by the stammerer so that he should know what does happen to him when he does stammer, but it is not necessary for him to have a profound knowledge of the anatomy or of the muscles but in just about the general way I have presented it. At least that is my view.

All stammerers if they watch and train themselves can talk normally. They have the tendency to mental and nervous hurry in talking. If they can slow their speech, if they live more fully in what they are saying, if they give themselves time to think more rhythmically and speak more rhythmically, the condition can be prevented and cured. Practically always they need to be shown ways and means.

On the other hand, until the stammerer gets to the stage where he can do these things he will continue to have his spasms. Hence he also needs some aid to know what he should do when he is in the spasm. He can learn to control himself during the spasm and what to do at that time because the spasm is in one of three places,—in the respiratory system, in the larynx or in the mouth.

If he finds himself in the oral spasm he should immediately open the mouth to produce the next vowel. If he finds himself in a laryngeal spasm he must immediately realize that he cannot produce the next sound until he closes his mouth; if he finds himself in a respiratory spasm he cannot produce any sound until he relaxes the respiratory spasm. If he realizes as soon as he feels the spasm, and he can feel it before you can see it, that he must immediately get a grip on it and dominate it, if he speaks more slowly and more rhythmically and proceeds at once to relax himself, he will gain helpful control over any spasmodic episodes

that he has. At the same time he must continue to work on himself, to prevent mental hurry during speech. From those two angles he will eventually get control of the situation.

One speaker mentioned the fact that during singing the stammerer does not have trouble. With the views I have presented here you can see why. When we are singing we are living in the experience, we are thinking rhythmically and speaking rhythmically. When he speaks more slowly, when he speaks rhythmically, it is then that the stammerer has no trouble. Just for that reason to confine one to the exercises of the respiratory system or the vocal system or the oral system is an error in that the individual then becomes concerned with what is happening in the different parts of the speech mechanism which would often make him more self-conscious and fearful and concentrate his attention on the different regions while speaking. When he has no trouble while talking there is no reason why he should concern himself with the mouth or larynx or respiration. It is only while in the spasm that he should immediately realize at the earliest possible moment what is taking place and then endeavor to correct the spasm he is having. Other than then the stammerer should not concentrate on the mouth, on the larynx or on the respiration. He needs training in thinking rhythmically as well as speaking rhythmically.

With respect to the inheritability of this condition, I believe there is no evidence to prove that the condition is an inherited trait. Whether it is a congenital trait is also quite a question. Even whether the stammerer has congenital irritability of the speech centers is quite a question. We know there are many diseases that we once thought were inheritable traits which have been proved to be acquired—even tuberculosis, for instance—during the life of the individual. The factor of imitation in stuttering must not be forgotten.

I think Dr. Kenyon stressed the fact that stammering begins during the speech development period, which makes us think that conditions during infancy up to the time and during the time of the speech development period may be responsible for the onset of the condition. Even if you contend that it is an inherited condition, which it is not; even if you could prove that it is congenital, with the views I have presented, it is a curable and preventable condition. I will not split hairs over whether there is a congenital instability of the speech centers or not.

I might add here that you will find some schools advocating the silence cure; the individual should never talk unless he feels like speaking. One writer who has some very good views on this subject insists that the stammerer, until he is cured should not speak but use a pencil and paper to answer questions. I cannot see any logic in that or how the individual could be cured unless he puts himself in situations where he must speak and learn ways and means out of his trouble. In the same way we find Scripture, who has written much on this subject, advocating the view, or at any rate he did some years ago, that the stammerer should follow some tune while speaking. If I speak to you

and have something I wish earnestly to say, if I think of a certain tune I do not see how I can concentrate on the particular thing I wish to present. All these artificial methods in no way aid in giving a real cure. The only way to get a real cure is facing the facts without any particular artificial technic, without any special mental tricks, but endeavoring to gain poise, to speak slowly, to speak rhythmically, to think rhythmically, to control the mental rush, and when in trouble to immediately realize that the thing to do is to relax the spasms and proceed to the next sound. In most cases a careful personality study is indicated.

I do not know of any schools that carry out this treatment, but even some of them are adopting the psychological approach to the treatment of stammering. All aids ("the melody cure," improving visual imagery, etc.) may be used in the beginning, while struggling for the real cure.

APLASTIC ANEMIA

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There has been no marked advance in our knowledge of primary anemias since Ehrlich, in 1888, reported aplastic anemia. A number of names have been coined to fit this condition, as hemolytic aplastic anemia (Turk); aleukie hemorrhagica (Frank); a regenerative anemia (Pappenheim). Possibly the most apt is that proposed by Thursfield,—anemia gravis. Thursfield, in classifying primary anemias, states that there are but three types of severe blood disease occurring in children before the age of puberty, viz., leukemia, purpura and anemia gravis. Anemia gravis is evidenced by profound changes in the peripheral circulation and pathognomonic changes in the bone marrow. There is a complete cessation of cell regenerative activity, which has been considered resultant from profound toxic action upon the hematopoietic system, either by diminishing its reproductive power or by destroying the cells more quickly than they can be formed.

In 1908 Cabot collected twenty-four cases from the literature. In 1914 Musser and Hirschfield reported forty-four cases. In 1917 Minot showed a similarity between aplastic anemia and purpura hemorrhagica and succeeded in confusing a little more the classification of anemias. Smith carefully reviewed the literature, analyzing some sixty-five cases of this condition, without adding any light as to the etiology. At the present time there are some eighty cases of aplastic anemia reported, of which twenty-two are in children.

Heubner reported one case occurring in infancy. It is more frequently seen in female children.

Symptoms: This condition is evidenced by anemia, shortness of breath, and progressive asthenia. The course is usually rapid and fatal. The mucous membranes are extremely pallid and there is often a tendency to hemorrhage. Retinal hemorrhages are not uncommon in the cases reported, and petechiae and hemorrhages from the mucous membranes have been observed.

Blood: The blood picture is characteristic. There is a marked reduction in red cells, platelets and polymorphonuclear leucocytes, with a decrease in the hemoglobin. The average color index is .8. There is relatively little change from the normal in size, form or color. The coagulation time is normal and the fragility test shows dissolution of red cells in salt solution, which is normal. White cells are usually reduced, the polymorphonuclear leucocytes bearing the brunt of this reduction, with an increase in the lymphocytes. Cabot and Musser reported the relative lymphocytosis to be between 45 and 92 per cent. The lymphocytes vary but little from the normal in appearance. The polymorphonuclear leucocytes (Minot) show single and double lobes, more plentiful than normal, which gives the left-handed shift of Arnith, instead of the right-handed shift of pernicious anemia (Briggs). The blood platelets are reduced and seem normal, or slightly larger than normal.

Bone Marrow: The bone marrow is yellow in appearance, as the parenchyma has been replaced by fat cells. There is usually no evidence of cellular activity in the bone marrow.

Etiology: That the primary lesion is of the bone marrow is generally accepted, but whether or not this lesion is secondary to some toxic process which paralyzes its function, or whether this toxic process combines with cell hemolysis in producing this marked anemia, is debatable. That aplastic anemia is secondary to some toxic condition seems most reasonable when we observe cases of aplastic anemia reported secondary to tri-nitro-toluene (tnt) (Rennie). It has been experimentally produced by various toxins, such as saponin, benzole, ricin, hemolytic streptococci serum and hemoglobin, and cellular activity has been promoted when the toxic agent is removed.

One school of observers claim that hemosiderin deposits in the liver and hemoglobin degeneration

products in the urine exclude a diagnosis of aplastic anemia. These products of cellular hemolysis have been observed in many cases and were present in the case we are reporting. It would be hard to imagine any toxin or any standing toxin process which would evoke such profound changes in the hematopoietic viscera preventing cellular formation which would not affect, to a certain extent, these cells already in the peripheral or general circulation. While poikilocytosis and polychromatophilia are evidences of hemolysis, attributable by Rennie to an alteration in the isotonicity of the blood plasma, and are rarely found in aplastic anemia, it does not exclude the fact that cell hemolysis may occur as an early reaction of the peripheral circulation to toxemia.

CASE REPORT

The patient is a colored girl four years, eleven months of age, whose mother states that the patient's general health was good until a year ago, when she had an attack of tonsillitis. Since that time she has had about three severe attacks, the last being one month before entrance into the hospital. There were fever and general pains during these attacks, which usually lasted for a week or ten days. Since the last attack the mother states that the child has not recovered her strength and seems progressively weaker and is losing weight.

The past history reveals a full term, normal birth, breast fed for six months, weight at one year twenty-three pounds, first teeth at six months, walked at one and a half years. There is no history of the acute diseases of childhood; but for an occasional attack of tonsillitis and bronchitis the child has always been well. The family history is negative for tuberculosis, cancer or mental diseases. Father and mother are living and well, and the mother has never been pregnant since the birth of this child, nor is there a history of miscarriages or venereal disease.

Physical examination shows a thin, colored, female child about five years of age who does not seem acutely ill. Weight 35 pounds. Pupils are equal and react to light and accommodation. There is no discharge from the nose or ears or impairment of hearing. Mucous membranes of the mouth are very pale. Tonsils are large and slightly cryptic. The teeth are in poor condition. There are a few palpable cervical glands in the neck. The chest is slightly prominent anteriorly, expansion is equal and normal, breath sounds are normal, no areas of impaired resonance, or rales. The heart: apex beat is visible over a large area, with a maximum impulse in the sixth interspace; the left border of the heart is 7 cm. from the midsternal line, the right border is 2.5 cm.; there is no thrill over the apex; two tones are heard with a slight systolic murmur in the first tone, the second pulmonic is not accentuated and two tones are heard over the site of the

other valves. The abdomen: scaphoid, very little subcutaneous tissue; there are no palpable tumor masses or areas of tenderness. The liver and spleen are not palpable. The extremities are symmetrical, with no deformities or limitation of movement. The reflexes are present and normal. Wassermann test was negative. Stool examination was negative for microscopic parasites and ova. Urine examination showed a faint trace of albumin with an occasional epithelial cell and leucocytes. Urochrome tests were repeatedly positive.

The first blood analysis showed red cells 710,000; leucocytes, 5,900; hemoglobin, Sahli, 20%; differential reds showed no poikilocytosis or polychromatophilia and no normoblasts or begaloblasts. There were no marked changes from the normal blood count except the profound anemia. Repeated differential examination of the leucocytes showed an average of 83% small lymphocytes, 3% large lymphocytes and 14% polymorphonuclear leucocytes.

Repeated blood cultures were negative. The fragility test showed hemolysis in .47 strength salt solution. Coagulation time was normal. The course of the disease was rapid. The child became progressively weaker and after ten days in the hospital had a temperature of 101. There was an increased area of dullness over the base of the heart and a systolic murmur accentuated over the mitral valve. Von Pirquet was negative and an x-ray of the chest showed the transverse diameter of the chest measured 16.4 cm. The left heart measures 6.3 cm. The right heart measures 2.2 cm. Transverse diameter of the heart measures 8.5 cm. The arch of the aorta measures 2.4 cm. The child died after three weeks' observation in the hospital. The post-mortem findings:

- Extreme generalized anemia; oligohemia;
- Absence of red bone marrow;
- Generalized anasarca (edema of anterior abdominal wall; moderate bilateral hydrothorax
- Moderate emaciation;
- Small epicardial petechial hemorrhages;
- Acute hyperplasia of mesenteric lymph glands;
- Cloudy swelling and fatty change of liver;
- Cloudy swelling of the kidneys;
- Large thymic body;
- Vene-puncture wound of right cubital fossa;
- Needle wound of left buttock;
- Left fibrous pleuritis;
- Adventitious fibrous adhesions in region of foramen epiploicum;
- Well developed so-called Jackson's membrane.

Microscopic Findings: The bone marrow is yellow and microscopically shows very little parenchyma and much ordinary fat. There is no evidence of cellular activity. The spleen is slightly large and dark red in color. Microscopically there is an atrophy of the malpighian corpuscles, which is a reaction to a long standing toxic process. There is some fatty degeneration of the splenic pulp with fibrous tissue proliferation. The liver is slightly paler than normal and shows some areas of fatty degeneration. There is some marked atrophy of liver cells around the

portal area. There is some hemosiderin in the liver, spleen and kidneys.

Diagnosis: A diagnosis of this condition is only conclusively made upon the post-mortem examination. The absence of any cellular activity in the bone marrow must be observed to corroborate the blood findings. Pernicious anemia is seldom observed in children and may be differentiated by the increased amount of homoglobin and the presence of juvenile cells. There is little or no tendency to hemorrhage, the spleen is enlarged and the skin is yellowish in color. Purpura hemorrhagica is undoubtedly closely affiliated with aplastic anemia and can usually be separated by the tendency of blood to assume the post-hemorrhagic characteristics, namely, polymorphonuclear leucocytes, and an anemia which seldom is lower than 2,500,000 cells per cubic millimetre. Infective endocarditis in adults may present the characteristics of aplastic anemia, but there is almost invariably at some period in the course of the disease an evidence of bone marrow activity. Hodgkin's disease and the aleukemic stage of leukemia are usually ruled out by observing variations in the blood picture during the course of the disease. Von Jaksch's anemia is usually observed in infants and has a large spleen and a typical blood picture. Anemias secondary to parasites show no alteration in the white blood picture other than an increase in the eosinophiles. Gauchier's type of splenic anemia is characterized by family incidence and a liver and spleen enlargement which shows endothelial cell tumors.

Prognosis: The cases almost invariably terminate in death, with a course of from one to three months. Parkinson and Benecke report cases which have recovered, but the diagnosis is not complete until the bone marrow has been examined.

Treatment: As this condition is undoubtedly due to some severe toxic process, our main efforts should be devoted towards finding the focus and removing it. In our case, with the history of repeated attacks of tonsillitis with a development of the profound anemia following on the heels of the last attack, we are forced to conclude that this case was secondary to a focus in the tonsils. Whether or not there was any potential or acquired weakness of the hematopoietic system present we are unable to state. The development of

this condition was so rapid that we were unable to remove the tonsils before death.

Iron preparations have been freely used to little avail. Arsenic in various forms has been given and sometimes a temporary cellular activity has resulted. Herrman declares that the transfusion of whole blood is the only mode of treatment which has given any results. From 300 to 500 cubic centimetres of uncitrated blood seems to increase, at least temporarily, the number of platelets, and possibly stimulates to activity some normal area, if present, of bone marrow. Splenectomy has been performed in several cases with fatal results.

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ANTIBODIES AND FATIGUE

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A child gets the measles. In due time he recovers, and usually he is thereafter immune from further attack. The fact that he got the measles in the first instance is evidence that, at that time, he did not have the power necessary to resist the attack. The fact that after recovery he is immune is evidence that he now has a power which

he did not have before. That new power is an acquired character.

According to current theories, this new immunity is not a power at all, but certain physical substances which are carried in the blood and are called "antibodies." These antibodies have never been found, but are supposed to remain in the blood for a lifetime and furnish protection against further attack.

If this theory is true, then this new immunity is not an acquired character, because an acquired character must be some characteristic of the life in the individual. There are, therefore, two opposing theories. One is that resistance to disease lies in the powers of the life in the individual. The other is that this resistance is due to specific antibodies floating in the blood, and which are analagous to armor which cannot be pierced. It is the intention here to review some of the consequences of these theories.

After the child has accumulated a set of antibodies specific to the measles, he catches the chickenpox and gets a net set of antibodies specific to chickenpox. Then he gets the mumps and some antibodies peculiar to mumps; the scarlet fever and some antibodies for scarlet fever; gets vaccinated and gets antibodies for smallpox; and so on for a considerable variety of ailments. If these antibodies are real bodies they must occupy space, and if they occupy space they must form a pretty large part of the blood stream in elderly persons.

But this is not all. We are surrounded by countless varieties of bacteria, all of which must obtain their living at the expense of something else. The fact that they do not harm us brings up the argument that we must have myriads of different kinds of antibodies in our blood. And the fact that we are born immune to these bacteria, and many persons are born immune to pathogenic germs, argues that these antibodies must be carried in the fertilized ovum.

But when we die, all of these antibodies vanish. The dead body is quickly destroyed by bacteria which do not harm it in the least when the body is alive. This shows that the real resistance to bacterial attacks is in life, and not in any physical bodies.

If a person swallows an acid, his system manufactures an alkali to counteract the acid. This alkali may be considered as an antibody specific to the acid swallowed, but this alkali does not

remain in the blood after it has neutralized the acid. If it did, it would itself be a poison which the system would have to combat by manufacturing an acid.

When a person first takes a habit-forming drug, a small dose produces considerable effect. If he continues to take doses at intervals, it soon becomes necessary for him to take larger and larger doses to produce the effect. The dope fiend will take with impunity a dose big enough to kill a dozen men not habituated to that poison. He is able to resist such huge doses because his system manufactures an antibody to neutralize the poison, and when the drug comes along periodically, the system prepares the antidote in advance. If the drug should fail to come along on time, the person suffers torture and perhaps death because the antidote is itself a poison. These facts show that while an organism may produce an antibody to offset a poison, such antibody cannot remain permanently in the blood. The lasting resistance to a disease which comes as a result of having fought that disease, must be something other than an antibody.

A person who has had the measles once may have them again, if "his resistance is lowered." And by lowering resistance a person may succumb to anyone of a large variety of diseases to which he is immune when his resistance is not lowered. Resistance may be lowered by exposure to cold, by long continued over exertion, or by some other illness. If it is antibodies in the blood which furnish resistance, then we would have cases of physical bodies going out of existence by being subjected to reduced temperature, or being consumed because the person ran a foot race. Also, we would have cases of antibodies specific for a particular disease being used up in the process of fighting some other disease for which they are not specific and furnish no resistance.

Each living thing has certain powers of coping with the environment. These powers may be great or small, but ordinarily they are sufficient to enable the organism to meet successfully such circumstances as may arise during a life time. The most fundamental characteristic of all living things is that when the powers they have are exercised increasingly, but to an extent less than that which produces exhaustion, those powers become greater as a result of that exercise. We take advantage of this in training

athletes and race horses. The powers which an organism acquires by such exercise are the biologic equivalent of the powers we know in mechanics. In fact, the power of living organisms and the powers of physical science are different species of the genus energy. They are all transformable into each other.

The acquirement of physical powers by exercising them, and the acquirement of resistance to disease by fighting it, are fundamentally the same. In each case the individual exerts himself within the range of his physical powers, with the result that the powers he has become greater in consequence of his exertions. But if the range of his exertions in either case is beyond the range of the powers he had at the time, then he dies. Here is evidence to show that it is life itself which a person expends when he runs a foot race or fights a disease, and that life is really a form of energy.

When a person exerts himself for a considerable length of time, he becomes *fatigued*, that is, he becomes tired all over. The current theory is that in physical efforts certain cells break down and form "fatigue substances" which are toxins, and that fatigue is nothing else than the system being poisoned by these fatigue substances.

But when toxins, such as snake venom, bacterial poisons, or any other injurious substance, get into the system, sufficient antibodies are produced to neutralize the toxins, and the neutral substance is then expelled by way of the excretory organs. When a given toxin appears frequently, the organism regularly produces sufficient antibodies to meet these toxins, as in the case of habit forming drugs. Now, if fatigue is due to a toxin, then the system will produce an antibody for this toxin, and there will be no such thing as fatigue. In other words, if there are such things as antibodies for even temporary use, then fatigue cannot possibly be due to toxins.

In ordinary affairs we buy horse power or kilowatts from the power station, and we pay good money for those things. Those terms represent the fact that we measure energy by units, the same as we measure cloth by the yard, wood by the cord, and beef by the pound. A horse power from a horse is identical with the horse power from a steam engine, and foot pounds of work coming from the muscles of a man are

identical with the foot pounds coming from any mechanical power plant.

Energy is stored work, and the amount of energy in a man's body is not unlimited. When he exerts himself physically, he is expending energy from his store of energy, and unless there is some means for checking that expenditure before the store is exhausted, the man will die from no other cause than such expenditure. Fatigue is a depletion of the energy supply, and the sensation which we refer to as fatigue is a signal to the nervous system that the energy supply is being depleted. Without such signal, a man would drop dead from overexertion without being aware of the existence of danger.

If the distress which we call fatigue is due to a toxin, and the toxin is due to the break down of cellular tissue by reason of physical efforts, then the degree of distress should be proportional to the amount of toxin, and the amount of toxin should be proportional to the amount of physical effort. But the distress known as fatigue is not measured by the amount of efforts put forth. It is measured by the amount of available energy existing in the organism at the time.

If you place a hot body in an atmosphere of ordinary temperature, the heat in that body will radiate away until the body is at the same temperature as the surrounding air. If you charge a battery and let it stand, the charge will gradually leak away. If you wind up a spring and permit it to remain indefinitely in that condition, the tension in the spring will gradually disappear. These things are examples of what is known in physical science as the dissipation of energy.

The same thing occurs in the same way in living organisms. When an athlete takes up a sedentary life, his powers decline, and the amount of the decline is determined by the degree of inactivity and the length of time the inactivity continues. After five or ten years of sedentary life, a former athlete will find that he is greatly fatigued by exertions which previously would not worry him in the slightest.

Now, if fatigue is due to toxins produced by exertions, the degree of fatigue should be proportional to the amount of toxins produced, and the amount of toxins produced should be proportional to the exertions put forth. But we find

that this is not the case. When an athlete changes from an active to a sedentary life, the store of energy in his organism declines in accordance with well known laws of physical science.

A certain amount of energy on hand in available form is needed to keep the works going. When a person exerts himself he expends energy from his store, and the supply gets down near to that needed to keep the machine going, he gets the distress signal. When a man has a large store of energy on hand he can expend a large amount before he gets the distress signal. If he has a small amount on hand, the distress signal comes quickly. That distress signal is what we call fatigue.

When a person is attacked by some pathological germ, he expends energy from his store in fighting those invaders. If antibodies are the tools used in that fight, then energy is expended in the production of those tools. If the fight is by way of phagocytosis, then energy is expended in physical combats as it would be expended in a wrestling match.

In a wrestling match or a foot race a person expends energy rapidly and then rests, but in the case of disease he expends energy less rapidly but has no opportunity to rest. In this last proceeding, while energy is not expended so rapidly as in a foot race, it is expended more rapidly than the store can be replenished from food, and the outcome depends upon the relationship between the magnitude of the store of energy and the magnitude of the attack. If the energy supply lasts until the germs are conquered, then the man recovers. If it does not, then he dies.

The fact that energy is expended and the supply largely exhausted in fighting a disease, is seen in the fact that a man beginning to recover from a long illness is very feeble. He is unable to expend many foot pounds of energy because he does not have them to expend. The mere effort of sitting up for a short time will make him fatigued. But it cannot be assumed that any material amount of toxins would be produced by such slight efforts.

We may sum up this matter by saying that fatigue is a condition in which the energy supply is largely depleted; that disease is a process of becoming fatigued; and that the sensation

called fatigue is a distress signal indicating the near exhaustion of the immediately available energy supply.

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A CASE OF IDIOPATHIC SPLENOMEGALY

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In view of the interest that has of late centered around splenectomy as a curative agent in certain diseases, especially blood dyscrasias, it seems justifiable to report a case which presents peculiarities in various respects.

Mrs. J. B., aged 38 years, of Polish descent, entered the Lutheran Memorial Hospital, August 22, 1924, five months after onset of illness, with complaints of pain in the left upper quadrant of the abdomen. Her husband and four children are living and well. The family history is negative. Fourteen years previously her left ear was operated on. In April, 1924, she began suffering from pain and discomfort in epigastrium and the left lumbar region and had a dragging sensation in the left flank. She lost her appetite and grew weaker. In the first part of June she noticed a swelling in the left hypochondrium. The pain was constant, of a dull character, but paroxysmally it grew worse and finally it became excruciating. The patient suffered from lack of appetite, but there were no digestive disturbances. She lost twelve pounds in five months. X-ray treatment, some kind of hypodermic injections, and oral administration of various medicaments by several doctors were of no avail.

For the sake of brevity, only the essential points of the physical findings will be mentioned. The patient was very thin; she weighed 112 pounds; her complexion was pale; her tongue was heavily coated; her thyroid gland was not enlarged; the most careful examination of the heart could not reveal any pathology; the rate and rhythm of the pulse were normal; the blood-pressure was 120/80; the lymph glands were not enlarged. In the left upper quadrant of the abdomen there was a well marked protrusion, movable with respiration; it could be readily felt through the thin abdominal wall; the palpation of the anterior border revealed a dull edge and the presence of three distinct notches; the sur-

face of the tumor was felt to be smooth. The enlarged spleen extended well beyond the median line in front and reached the height of the anterior iliac spine in the left mamillary line. The liver was not enlarged. A radiographic study of the gastrointestinal canal revealed an elongated stomach situated with both curvatures below the umbilical line. The blood examination gave the following figures: HC. 80%, R. B. C. 5,060,000, W. B. C. 14,300, Polymorphonuclear neutrophils 84, lymphocytes 6, large mononuclears 5, eosinophiles 4, basophiles 1. The Wassermann test and blood cultures were negative; coagulation time, three minutes. Malaria parasites could not be found in the blood smears. The urine examination was negative.

After other forms of treatment had completely failed to ameliorate the condition of the patient, who was suffering greatly from pain and emaciation, a surgical procedure was taken into consideration. A preliminary hygienic treatment comprising rest, good nutritious food, fresh air and sunshine was instituted in order to raise the natural resistance of the patient.

A splenectomy was performed on August 26, following the technic of Balfour; adhesions were not numerous and no special difficulty was encountered in removal of the mass. The exploration of the abdominal organs, especially the palpation of the liver, gave negative results.

The removed spleen measured 10x12x20 cm. and weighed 580 gm. The surface was smooth, of a dark red color; on the convex side five round purple elevations measuring 2 to 3 cm. in diameter, were visible; there also were two whitish depressed areas 2 cm. in diameter; the consistency of the spleen was firm; the cut section was smooth, hard, dark colored and presented several typical wedge-shaped infarcts, corresponding to the elevations on the surface; most of them were reddish in color, two had a whitish appearance. The vessels at the hilus were dilated; the splenic artery contained thrombi of recent formation.

REPORT OF MICROSCOPICAL EXAMINATION OF SPLEEN

The stroma of the pulp is markedly increased. On account of the thickening of the reticular fibres, the sinus stand out very distinctly. A comparatively small amount of cells fills the spaces of the thick fibrillar meshwork. Lymphoid cells are predominant, besides a larger number of

eosinophile granulocytes and of plasma-cells with vacuolated cytoplasm are found.

The sinus are lined with flat endothelial cells. In some places the endothelium appears enlarged, vacuolated, and filled with the debris of phagocytated cells. The sinus contain only a few lymphocytes.

The follicles are small, and are formed by a few rows of lymphocytes about the central arteries which show hyaline thickening of the intima.

In the dark red areas the splenic tissue is deeply infiltrated by erythrocytes. The hemorrhagic infarction has destroyed the structures and only the small lymph follicles are still visible. The veins in the hemorrhagic parts are blockaded by fresh thrombi. Strands of fibrin and masses of red blood corpuscles fill the lumen. The walls of the thrombosized veins are not changed.

The convalescence was uneventful. There was a rise in temperature on the second day following the operation, reaching 100.1, which promptly returned to normal in twenty-four hours. The patient complained of pain in the left shoulder for several days; this symptom may be attributed to increased medullary activity but more probably it is due to diaphragmatic trauma as brought out by Capps in his study of reflex pain. The blood count on September 2—seven days after the operation—gave the following results: R. B. C. 4,800,000; W. B. C. 19,400; H.C. 80%; Bl. pr. 110/70. Howell-Jolly bodies were present in the blood smears; the resistance of erythrocytes to hypotonic salt solution was increased as compared with the findings before the operation; erythrophagocytosis as observed by Hirschfeld in splenectomized animals could not be found. Some peculiar symptoms developed during the first two weeks of convalescence. The patient was suffering from profuse perspiration though the temperature was normal. The pupils were unequal; sometimes the right one was larger than the left one; few hours later the opposite was the case; the pupils reacted to light and on accommodation normally. The gums were bleeding at frequent intervals. A bloody discharge from the uterus appeared repeatedly in the first four weeks. The most striking feature, however, was the hyperperistalsis which was first observed on the fourth day after the operation: from time to time rapid peristaltic

waves were seen in different parts of the abdomen through the thin abdominal wall; these attacks were associated with an unpleasant sensation experienced by the patient. The x-ray examination showed that the stomach assumed its normal position; there was a marked hyperperistalsis of the stomach and intestine; otherwise the findings were entirely negative. There was no nausea, no vomiting, no diarrhea. Six weeks after the operation, the hyperperistalsis was still present; it was not causing any digestive disturbances and gradually disappeared. Seven weeks after the operation no more peristaltic waves were visible.

COMMENTS

The removed spleen cannot be classified except under the general term of idiopathic splenomegalia. The cause of the vascular obliteration and formation of hemorrhagic and anemic infarcts could not be determined. The clinical history throws no light on the obscure origin of the enlargement of the spleen: neither cardiac involvement, especially endocarditis, nor chronic passive congestion due to obstruction in the pulmonary or portal circulation could be detected; there was no evidence of any chronic septic condition such as malaria or syphilis.

The interesting and unusual symptoms which developed after the operation were: 1. profuse hyperhidrosis without elevation of the temperature. 2. hemorrhagic diathesis not present before the operation. 3. inequality of pupils. 4. hyperperistalsis which cannot be explained by formation of postoperative adhesions as special attention had been paid to a careful covering of raw surfaces left after the removal of the spleen and the postoperative roentgerologic study of the stomach and intestines failed to reveal any kinks or obstruction.

While there is very little known concerning the function of the spleen, it is best considered as a filter set in the blood stream and as an organ of internal secretion. The spleen can be removed without permanent ill effects—probably because the associate organs may take up its functions. Nevertheless, the firm establishment of the fact that the spleen is not necessary to life does not release the surgeon from the duty of a careful and judicious selection of cases suitable for splenectomy. From study of the described case the assumption that the internal

secretion of the spleen may be more important than is generally accepted, seems to be justified. It would be desirable to pay special attention to the above mentioned phenomena in the cases of splenectomies which will be performed in the future.

1206 N. La Salle Street.

CLARIFICATION AND PASTEURIZATION OF MILK*

ARTHUR J. CLAY, M. D.

HOOPESTON, ILL.

Much has been written on this subject during the past five years, and in some sections of this state much progress has been made while in others little has been said or done, and since I have been one of our Health Officers for the past seven years it places me in a position to know a few facts at least along this part of the work that has been done by state and county officers. so therefore I have been requested to present this paper at this time.

The significance of the clarifier's use has been an outgrowth of the use of the "separator" in the attempt to clarify or purify milk. Since the function of the separator was only to remove fat from the milk, the clarifier does not necessarily do that but it removes foreign and unwholesome elements so far as this is possible, so accordingly there is good reason as a basis for an endeavor to perfect a machine which will perform the single function of clarification in its highest degree.

When milk is poured into a machine of this kind it adheres to the bowl in the form of a slime. Now, what is this slime? and do you think that the action has improved the milk? Well; this can only be answered partly by a summing up of the points bearing upon milk purification by the clarifier. It removes all visible dirt. It removes inflammatory products which include many of the causative germs and of course we must admit that it is a strainer.

But while they remove visible dirt they cannot remove all the disease-producing germs, and hence critics say, the consumer is misled as to the real purity of the milk.

It has never been able to remove the soluble portion of feces or urine, nevertheless the milk

appears clean. It will largely destroy the value of the dirt test. Though no more than good straining, it breaks up the clumps of bacteria and distributes them through the milk. The material that is removed during the past years has not yet been fully understood. It is fitting therefore to analyze the above statements, not exhaustively but a little more closely, just for indicating their looseness, so putting them all together the thought is thrown into one or possibly two channels. It removes visible dirt but not all the disease producing germs, hence the consumer is misled.

It would be a rare centrifuging machine which would claim such a function as eliminating all pathogenic micro-organisms, in the light of what is known about centrifuging out such forms. Selective elimination of this nature savors of the superhuman at present, and implies more than is possible, so after all the clarifier is just a product of human effort and may be considered favorable in the case of straining; so, if the hearers will just sum up these statements as they stand; they must conclude that the clarifier is far more efficient than any thing else in use.

Now I might go into many details about the use and results that seem to help out with our milk troubles and I might go on with many assertions leaving them in their baldness and be hard for hearers to digest or understand and after all does any device accomplish it, does even pasturization of milk, which is a sort of panacea by any commission for milk trouble, overcome what is intimated? Such products exist in the best of milk, maybe in an infinitesimal degree, but it cannot be denied.

Many communities are depending upon inspection of the farms and dairies by the health authorities as a safeguard against infection of the milk supply. An efficient inspection service may be a preventive measure and strike at the root of the milk problem, and may assist the farmer in tracing the sources of an infected milk supply and preventing its recurrence and in the end be of educational value. The inspection of milk in its highest degree will be expensive and tends to increase the price of milk to the consumer, and even at that it cannot as yet be done at all places, but even with a surety against infection the inspection should be combined with pasteurization.

Here, too, is one of those statements which

*Read before Section on Public Health and Hygiene, Illinois State Medical Society, Springfield, May 7, 1924.

are so commonly brought forth to "clinch" an argument. Has man ever hesitated to utilize a new device, when such a device, so far as he can determine, improves the product, even if it does entail a new movement? An earlier writer who had done nothing particular in this work once closed his review with, "What next?"

Owing to limited time I must devote most of it to the benefits of pasteurization, the good of which can no longer be questioned. It is here in use, and here to stay, and the general tendency in this country is toward the pasteurization of all milk used, with possibly the exception of milk from tuberculin tested herds. So far as known, only one state, (Cal.) has a law that required all milk to be pasteurized, but from the reports of the work that is being done I feel that in two or three years many of the cities, and a few states, in the commonwealth will pass such a regulation.

Many states are doing a great deal of pasteurization, and it seems that the cities of a population between 10,000 and 25,000 are the leading places having it done. But now from what I have heard and read there seems to be a feeling among the milk inspectors and health officers that some crooked work is still going on in the industry, yet I feel that this is actually due to the lack of knowledge how to carry on the process, either by the dealer or the operator of the equipment, so it means first showing the operators how to do the right thing, and second, see to it that the right thing is done.

After visiting some of the pasteurization plants in this state you will see the need of supervision. Milk heated to the proper temperature and proper length of time, by the recording thermometer should range from 142 to 150 degrees F., and such should be recorded and kept on file for the competent inspector.

In some places pasteurization is simply carried on as an advertising feature, and not as a health measure, and such places should be inspected as some places did not even own a pasteurizing apparatus, and such plants were operated by men who had very little, if any appreciation of the health significance.

Another thing of importance that I might mention is the disposal of the milk after pasteurization, which is the protection against subsequent contamination by filling sterilized containers and then placing them in storage below 50

degrees F. Many kind of storage places are used, but like four or five different pasteurizers that are in use, they are also deficient and need improvement.

I might go on and mention about sixteen different things and patents in detail about pasteurization plants but time will not permit, and we as Health Officers, while thinking about all the processes, must not forget to think about the diseases that are carried by the use of milk.

One thing I want to mention before I get too far is the filling of milk bottles. It can be done by a machine that fills and caps the bottles and the dairy man don't even touch it, but, in many places in our own state as well as many others, they simply fill the bottle in a trough and by hand put on the cap and the milk that is spilt runs down to the end into a bucket which when filled is carried back and emptied into the supply tank and the second effort made to bottle it. Oh I could tell you many things that hurt the close observer.

The average educated man is interested in his work and takes pride in doing it right, so the best thing it seems to me is to require operators of pasteurizing machines to have sufficient knowledge of the process to be able to pass a written and laboratory examination in their own plant before granting them a certificate and put this matter under state control, then a high per cent. of the difficulties will be solved.

Now the educated or learned and conscientious gentlemen who are forever telling the public about the dangers lurking in milk would do everybody concerned a bigger favor if they would just confine such remarks to the ears of men who handle milk. Life is real to most of us, and we must not lose sight of the human touch of things which has so much to do with our health. Yet the business is largely a matter of dollars and cents, outgo and income, but after all the real vital force behind it is the human beings and their welfare, and furthermore, because of the fact milk is a fundamental food and enters so vitally into the economic and moral phases of our civilization, it is even more sensitive to those conditions affecting the economic and moral status of business than probably any other economic goods with which the country's industry is concerned.

No doubt you have read the recent report of the milk which was being used by the children

of the schools daily at Seneca Falls where, on March 10, about seventy-five were seriously poisoned by the farmer bringing in milk that had not been pasteurized. This is not the first time that such has happened and will continue to happen as long as our state laws remain as they are, but when we get awakened enough to have capable health officers in every county similar to three or four now working in our state such serious troubles to school children will cease.

I might mention here that "Milk sickness" which occurs every dry season in southern Indiana and Illinois might be avoided if the milk is pasteurized, at least I have by experiments about proven such since I furnished the chapter in volume eight of "Tice's" work on the Practice of Medicine.

The question of milk supply has become important in the control of diphtheria in many hospitals and homes, as it furnishes an excellent medium of transmission and fifty or more cases have been proven. Yet San Francisco public schools have reported that the children who are milk drinkers are less liable to fall victims of diphtheria. They are to have milk until they grow strong and can offer more resistance to the epidemic but such milk used is pasteurized.

The results that are obtained in the Milwaukee schools may lead Wisconsin to adopt more strict rules in regard to the use of milk that has been provided. The co-operation of the health department, school board and teachers in one school for a period of six weeks has proven a gain for the underweight, and ten per cent. of those who do not drink milk are shown underweight. Experiments of this kind are being done in many places with pasteurized milk.

Many communities are depending upon inspection of the farms and dairies by the health authorities as a safeguard against infection of the milk supply and a thorough inspection service is a preventive measure that strikes at the root of the milk problem, which is valuable in tracing the sources of infected milk supply and preventing its recurrence. As a surety against infection, therefore, inspection should be combined with pasteurization. Epidemic of typhoid and scarlet fever has been traced by the thousand to unpasteurized milk, also countless numbers of septic sore throat.

Therefore the longer I study milk the more I

see the need of county health officers who are capable men doing honest work for each county, as milk as human food is considered as about one-sixth of the total food used by the average family.

For many years health officials have endeavored to safeguard the public's milk supply. As a result of their efforts, strengthened by excellent co-operation on the part of milk producers and dairy organizations, this country now has a supply of which it may be justly proud, but there are cities or towns whose supervision is still somewhat lax, and whose milk regulations need revision. The general situation is good but yet there can and must be much improvement all over the state.

DISCUSSION

DR. THOMAS H. LEONARD (State Department of Health, Springfield): I don't know why I should be called on to discuss this paper. Dr. Clay has covered the field quite well. There are a few items in Dr. Clay's paper like the statements made in Dr. Liston's paper that should not go out in a meeting of this kind without some challenge. Illustrating, I had occasion to talk with Dr. Liston* two months ago with reference to the vaccination status of the people of his county and he advised me that the two nurses in his county had been influenced by reading and believing some of the literature that was put out by people that were opposed to vaccination, and so it is no surprise that we read recently of an unvaccinated nurse in a Moline hospital dying of smallpox. Possibly physicians will believe that there is an argument against vaccination if we allow these things to go unchallenged.

Dr. Clay spoke about the clarification of milk. I doubt if clarification is a health measure. It is a commercial rather than a health measure. He also spoke about the standard limits of pasteurization as heating from one hundred forty to one hundred fifty degrees Fahrenheit for a period of thirty minutes. The University of Illinois has made extensive experiments on pasteurization and their reports show that one degree above one hundred and forty-five degrees Fahrenheit, as for instance, one hundred and forty-six degrees Fahrenheit for a period of thirty minutes will hurt the commercial sale of milk because one degree higher of heat will throw down ten per cent. of the cream that the customer is expecting to see on his morning milk. While this again is not a health matter, it is a matter that we must deal with in handling milk commercially. In pasteurizing, milk

*Dr. Liston offered the suggestion that if the people were foolish enough not to be vaccinated they deserve to have smallpox.

should not be heated above one hundred and forty-five degrees Fahrenheit.

Dr. Clay stated that pasteurization is here, or is coming, and I believe that the public health men in Illinois counties and in cities recognize pasteurized milk as the best commercial milk supply.

He stated, I believe, that the testing of cattle for tuberculosis might be a substitute for pasteurization, if I understood him right. I don't think that the testing of cattle covers the entire field. It just covers one phase of the field, that is bovine tuberculosis; we still may have all the other disease producing germs in milk after bovine tuberculosis is entirely eradicated, if we live to see that time. I doubt if it will occur in the next ten years, and possibly many years after that before bovine tuberculosis will be eradicated in Illinois. The State Veterinarian advised me a few days ago that if the machinery in operation to eradicate bovine tuberculosis should be active for the next ten years we would still have bovine tuberculosis in Illinois, so we need something to take its place for that period at least.

We heard Dr. Ochsner state last night that bovine tuberculosis as manifested in surgical tuberculosis is almost extinct in Chicago today.

I am glad to be present to hear medical men advocating the pasteurizing of milk. I find in my visits with the men in the various cities that medical men still think that possibly the cooking or the pasteurization of milk destroys food values. I think that we as a public overlook the important point that most all of our foods are cooked and if there are bacteria in the foodstuffs such as potatoes and other vegetables, that are cooked we eat the potato, bacteria and all, and think nothing of it, but if there are a few bacteria in milk we eat the bacteria in milk, but we hear people objecting to eating the dead bacteria consumed in milk. The food value of milk is so slightly hurt by pasteurization that medical men should overlook it because we can feed to these children the substances that are destroyed in cooking, with a few drops of orange juice and the matter of cooked or pasteurized milk should not stand in the way of safe milk. We have arrived now at the place where we must stand for one thing above all others in milk and that is safe milk from a health point of view.

Society Proceedings

ADAMS COUNTY

The January meeting, January 20, 1925, was the Annual Social Meeting and was a joint meeting of the Adams County Medical Society with the Woman's Auxiliary to the Society. Fifty-two were present. After an informal gathering a splendid banquet was served. Following the banquet, Dr. Arthur Bitter, Chairman of the Entertainment Committee, stated that girls from the Y. W. C. A. Federation would present

an entertainment. The first number was a take-off on the Mayo Clinic by five girls, and the next was a reading and the third number was some selections on the piano and singing. Dr. A. Bitter then turned the meeting over to the toastmaster, Dr. C. D. Center. The following members were called upon to respond to toasts: Dr. Meshire, "The Country Physician and 20 Degrees Below Zero." Dr. Arthur Bitter, "Living Up and Living Down to My Father's Reputation." Dr. Cohen, "All I Want Is a Drop of Your Blood." Dr. Stevenson responded to a toast which had been intended for Mrs. Stevenson, on "Sometimes I Wish My Husband Was an Auctioneer." Dr. Pollard, "The Joys of Transplantation." "Mrs. H. Swanberg, "Tell Me the Old, Old Story." Drs. Jurgens and Knox had been scheduled to give toasts but were unable to be present. At the conclusion of the toasts dancing was enjoyed until midnight.

Harold Swanberg, M. D.,

Secretary.

Special January Meeting

January 23, 1925.—This was a special meeting called at 4:00 p. m. by the president to discuss the proposed clinical laboratory to be conducted by the Quincy Public Health District, Col. W. D. Wrightson, local public health officer, having been invited to address the meeting. The president, Dr. C. D. Center, was in the chair and 43 members were present.

Dr. Beirne moved that the meeting be a closed one to members of the Adams County Medical Society and Col. Wrightson and the chair be empowered to give out the publicity. Second and carried. The chair then explained the purpose of the meeting and the method in which it would be conducted, Col. Wrightson being extended the privilege to address the membership.

Col. Wrightson then proceeded to explain why he had recommended the closing of the district Venereal Clinic and why he wished to make a change in the present method of conducting the district laboratory, substituting in its stead a full time laboratory under his direct control which would make examinations of milk, water, sewage, sputum, blood, urine, tissue and in fact examinations of every kind which are usually done by clinical and state public health laboratories.

Following this a great many physicians asked questions and then a general discussion was engaged in. Those taking part were: Drs. Knox, Nickerson, Beirne, Brenner, Wells, Cohen, Koch, Baker, Pollock, Stevenson, Pearce, A. Bitter, Center, Swanberg, Shawgo, Pollard, Montgomery and Col. Wrightson. No one voiced an objection to the recommendation of closing the venereal clinic—in fact there appeared a general sense of approval. Several members protested vigorously against the scope of the work of the proposed laboratory. At the conclusion Dr. Beirne made a motion that the entire matter be left on the table. Seconded by Dr. Montgomery and carried. Dr. Nick-

erson then moved that we adjourn. Seconded and carried.

Adjournment about 6:25 p m.

Harold Swanberg, M. D.,
Secretary.

COOK COUNTY

Joint Meeting Chicago Medical and Chicago Laryngological and Otological Society, Jan. 14, 1925

Internal Ear—Some of the newer conceptions of its structure and function—(Lantern slide demonstration)George E. Shambaugh
Discussion: J. Holinger.

Otology—Some present day clinical Problems.....
.....J. Gordon Wilson
Discussion: Chas. Robertson and Joseph C. Beck.

Meeting of the Central Society Under the Auspices of the Jackson Park Branch, Jan. 21, 1925

The Tonus of the Blood Vessels.....A. J. Carlson
Paroxysmal Tachycardia.....Wilbur E. Post
Discussion by James G. Carr, James R. Greer.

Diagnostic Clinic, Jan. 28, 1925

Interesting Cases in Hydronephrosis, Pyelonephrosis and Diverticulum of the Bladder.....
.....Vincent J. O'Connor
Medical Complications of Pregnancy.Solomon Strouse
Surgical ClinicCarl Beck

JOINT MEETING OF THE CHICAGO LARYNGOLOGICAL AND OTOLOGICAL AND

THE CHICAGO NEUROLOGICAL SOCIETIES

Abstract of Proceedings

A joint meeting of these two Societies was held on Monday, December 3, 1923, at the Auditorium Hotel, at 7:45 p. m.

Dr. John A. Cavanaugh, President of the Chicago Laryngological and Otological Society, presiding.

The program consisted of a Symposium on "Inflammations of the Brain and the eninges of Oto-Rhino-logic Origin."

DR. JAMES P. SIMONDS, (by invitation) in speaking of the *Pathology* said that there were four inflammatory processes occurring inside the cranium which result frequently from inflammatory processes beginning in the middle ear or sinuses of the nose: Thrombophlebitis of the dural sinuses, extradural abscesses, meningitis and brain abscesses, and discussed each of these complications.

DR. JULIUS GRINKER, speaking on the *General Considerations* divided them into the following sub-heads: I. Meningitis; II. Infectious Sinus Thrombosis; III. Brain Abscess, and discussed the *Differential Diagnosis*.

In his opinion otitic or rhinologic meningitis can be definitely differentiated from other forms of meningitis by complete examination of the spinal fluid, although there are conditions resembling true meningitis, such as *meningism* and *meningitis sympathica* which may cause some diagnostic difficulties. Meningism is a condition in which there are meningeal symptoms quite as acute as in true meningitis, but the spinal fluid is only increased in amount and shows no pathology. The patient usually recovers after a single spinal puncture. In meningitis sympathica there are meningeal symptoms but the spinal fluid is perfectly sterile, though there is an increase in pressure up to 400 mm.; there is also an increase in albumen and polynuclear cell-content. As this type of disease occurs in connection with brain abscess, with or without mastoiditis or lateral sinus disease, it may help positively in the diagnosis of brain abscess and negatively in excluding otitis meningitis.

The following differential points between *meningitis* and *brain abscess* were given:

In abscess the temperature is low or subnormal; not so in meningitis.

The pulse is slow in abscess; may be accelerated in meningitis.

A Kernig sign is unusual in abscess, unless the abscess has broken into the meninges and caused meningitis.

A Babinski sign may occur in abscess, is unusual in meningitis and when present is bilateral.

Optic nerve changes are more common in abscess than in meningitis.

Focal signs, usually present in abscess, may not be present in meningitis.

The spinal fluid may be normal in abscess, but pressure may be increased and the fluid may be turbid because of increased cellular content, usually polynuclear.

The abscess course is like that of brain tumor, while meningitis is more turbulent.

DR. HUGH T. PATRICK, in discussion the *Focal Signs and Symptoms*, confined his remarks to abscess as the focal signs of both septic and serous meningitis are so uncertain. Focal signs of abscess of otorhinologic origin are the same as those of abscess of any other origin and the focal signs of abscess are practically the same as those of any other pathologic process.

In locating a brain abscess focal signs should take precedence over the locus of a known source of infection. Frontal sinus or ethmoid disease generally causes frontal lobe abscess but if the neurological signs point to the temporosphenoidal lobe the abscess should be sought there. Abscess of otitic origin is nearly always in the temporal lobe or cerebellum but if focal signs point to the Rolandic region, in all probability the abscess is there. Focal signs of frontal abscess frequently are absent and not very often conclusive. If the lesion extends caudalwards far enough to reach the prerolandic region, motor symptoms and perhaps sensory symptoms appear and on the left side

motor aphasia or agraphia. Focal fits are very rare and general convulsions unusual. Focal signs of abscess in the temporal lobe relate to the visual fields and language. Focal signs of cerebellar abscess may be entirely lacking. Sometime they are obstructive and sometimes only slight but most illuminating. Cerebellar ataxia is the most valuable. Vertigo is important, and in determining whether it is of cerebellar or vestibular origin the Bárány tests may be very useful. An abscess located in the pons or medulla is an extreme rarity but the focal signs would be those of any other lesion in this locality.

As an abscess from nose or ear infection may be located in any part of the encephalon, all the localizing signs of brain lesions should be considered in any given case.

DR. GEORGE SUKER (by invitation), in summing up the *Ocular Findings* said:

There are five points with which to evaluate the fundus findings (to which his remarks were limited) in any intracranial complication, whether abscess, tumor, meningitis, injury, gunshot wound or anything else:

(1) Their absence does not indicate absence of intracranial lesions.

(2) The fundus changes do not indicate the character or location of the lesion.

(3) The fundus changes have no bearing on the longevity of the patient.

(4) The fundus changes in the absence of cerebral manifestations are of great diagnostic value in suspected intracranial complications.

(5) Fundus changes can appear in any type of intracranial disease.

DR. HARRY A. SINGER (by invitation) spoke of the *Spinal Fluid Changes* and expressed the opinion that where the prognosis and course of treatment are guided by or are dependent upon the type and extent of the meningitis present the spinal fluid findings may be of value. From a therapeutic and prognostic standpoint it is quite important to decide whether one is dealing with a case of *circumscribed* meningitis or one in which the inflammation is *diffuse*, inasmuch as it is difficult to tell when the process is serous and when suppurative. Since so many cases of diffuse meningitis are associated with negative smears and cultures while not infrequently a case of circumscribed meningitis yields organisms, the problem would hardly be satisfactorily settled by merely a bacteriological examination. For this reason it was deemed advisable to study the cell count as well in these cases of otitic meningitis to see how much significance might be attached to this finding, and to determine the limits below which a meningitis can be considered localized and above which it is diffuse. Since cases of brain abscess are frequently associated with meningitis and it is this type of intracranial otitis complication which is most perplexing this type was chosen for study. In reviewing the brain abscess histories of the Cook

County Hospital for the past five years they were able to find but ten records which fulfilled the requirements.

In ten cases of otitic brain abscess in which the signs and symptoms of meningeal irritation appeared, but in which the subsequent clinical course or post-mortem findings indicated that the meningitis was localized there was an average cell count of 2,200; the lowest being 60, the highest 9,000. Two cases gave a count under 100; four between 100 and 1,000 and four between 1,000 and 10,000. In the three cases in which diffuse meningitis followed, as corroborated by post-mortem findings, the counts were in each case 21,000, 54,000 and 56,000.

The striking feature in the brief survey was that counts of from 3,000 to 9,000 may be associated with but a circumscribed meningitis. It appeared that other things being equal, such as the virulence of the organism and the resistance of the host, etc., the cell count is a rough index to the extent of the meningeal involvement and should be taken into consideration along with the bacteriological findings, in the interpretation of laboratory reports on spinal fluids.

DR. WELLS P. EAGLETON, Newark, N. J. (by invitation) took up the *Operative Treatment* and expressed the belief that the treatment of meningitis and suppurative brain conditions has not kept pace with the advances in non-suppurative conditions.

He stressed the necessity for the development in every large hospital and in every eye and ear institution of a department of head surgery, this department to consist of a chief with a good surgical understanding and three assistants, and to have at its disposal the first call upon an operating room, a trained nurse, a technician and a laboratory man. He believed that every patient entering the hospital with a running ear and certain vague neurological symptoms should be subjugated to a complete neurological investigation before a simple mastoid operation is done. This neurological examination with a *complete* history he thought would diagnose a majority of brain abscesses very early and the surgeon should be competent to conduct such an examination. Operation should be performed as soon as all data are obtainable and every technical procedure that may be encountered during the operation has been provided for, and then *immediately*.

An x-ray picture should be taken of every suspected brain abscess. Experience has shown that a very large percentage of abscesses of the brain accompanied by ear disturbances are also accompanied by cloudiness in one or more nasal sinuses. If lumbar puncture is performed it should be done very carefully, and one should be prepared—particularly if the patient begins to breathe badly—to go ahead with the operative procedure.

In an abscess of the temporosphenoidal lobe one should operate by a large flap so that no abscess may escape notice. A wide exposure of the cerebellum is necessary if one is to find the abscess in the different parts of the cerebellum in which it occurs.

In a recent case of cavernous sinus thrombosis, the infection coming from in front from an invasion of

the ethmoid cells, he tied the common carotid before eviscerating the orbit. There was practically no hemorrhage. They removed the wing of the sphenoid, opened the cavernous sinus from in front, passed a probe back in it as far as the petrous portion of the temporal and the child recovered. In the next case in which the cavernous sinus was infected from the petrosals, the infection coming in from behind, he did the same thing and obtained the same result. The explanation of these startling recoveries he thought was simple: thrombosis, whether it is a cavernous sinus thrombosis or a thrombosis in the leg, is made worse by movement. In cavernous sinus thrombosis there is infection inside one of the great nervous trunks and inside of it the internal carotid artery is pounding away and keeping the thrombotic process going, but if the common carotid is tied it is put at rest.

In referring to meningitis Dr. Eagleton called attention to the fact that at the beginning of the process suppurative meningitis is localized and does not involve the whole cerebrospinal circulatory system. If this localized collection of fluid is evacuated one lets out a collection of fluid which is highly toxic and which contains microorganisms (sometimes with a low cell count in the lumbar region as low as 48 and sterile) the case may recover, provided the fluid is replaced with a simple solution that contains calcium salts at the temperature of the body. In the last two years he has succeeded in getting a few cases well that he was convinced would not have recovered otherwise.

DISCUSSION

DR. JOSEPH BECK said he had always profited by the work Dr. Eagleton had done. His own results had been very disappointing in work on the brain, and in meningitis he had no good results to report. He thought Dr. Eagleton's treatment of meningitis was good and congratulated him on his work in this field.

Dr. Beck called attention to the value of the Crowe-Beck sign in sinus thrombosis. He thought this should be tried even if it did not prove positive in every instance. The symptom is elicited by pressing the region of the internal jugular vein on the affected side, or having someone else press it, while one examines the interior of the eye. When this is done one can see the distension of the veins in the fundus of the eye as well as on the external temporal side.

DR. G. B. HASSIN thought the most interesting phase of the brain abscess problem is the formation of a connective tissue capsule around the abscess. Histologic studies of a capsule shows that it contains three distinct layers. The one adjacent to the abscess is made up of fibrous tissue containing few, if any, blood vessels. The layer bordering on the brain substance also contains fully developed collagen connective tissue fibers, but it is distinctly vascularized, while the middle layer principally consists of an enormous amount of hematogenous elements (lymphocytes, plasma cells, polyblasts) and fibroblasts (young connective tissue cells), scattered among numerous capillaries. By brilliant experimental work Maximow has demonstrated that young connective tissue grows from hematogenous elements, principally polyblasts, considered by him modified lymphocytes. The histologic pictures of the youngest, the middle, layer in Dr. Hassin's cases was so similar to those of Maximow that he felt justified in maintaining that the brain abscess capsule grows from the hematogenous elements.

DR. C. F. YERGER said he had recently had some experience in the diagnosis of two cases of temporosphenoidal lobe

abscess, in which the diagnosis was made on the finding of visual aphasia.

Referring to the cell count, Dr. Yerger thought it made a great deal of difference at what time the puncture was made; if made at the beginning of the localizing or protective reaction there would be only a relative increase of cells, while if made at a later stage, after the inflammatory reaction had been greatly increased, there would be a proportionately greater increase in cells, while in the terminal stage of diffuse suppurative leptomeningitis reaches the maximum. In one case with the onset of a diffuse meningitis the count rose from less than 2,000 to 56,000 cells and in another from less than 1,000 to 20,000 cells. He had seen the cell count reach as high as 250 in a case of brain tumor, but the cells were of the lymphocytic variety; whereas, in sympathetic or septic meningitis, while there is a pleocytosis it is of the polymorphonuclear variety.

DR. J. HOLLINGER asked Dr. Eagleton in what percentage of his cases of meningitis or brain abscess he found the Babinski and Kernig signs. He stated that drainage of the subarachnoidal space in several cases of beginning meningitis had given him good results, and thought Dr. Eagleton's explanation of those results seemed plausible.

DR. GEORGE W. BOOT reported a very peculiar symptom which he had seen in one patient with suppuration of the frontal sinus. So far as he knew this patient did not have a frontal lobe abscess but an empyema of the right frontal sinus. When he was requested to sign the operation permit this patient turned the blank upside down and insisted that he always wrote his name upside down. Dr. Boot then held the paper right side up and the patient wrote it backward as well as upside down. It was not mirror writing. A week later he tried to write his name this way but could not do so.

In Dr. Boot's experience the most significant symptom of a left temporosphenoidal abscess has been disturbance of the center for the memory of names. In the localization of a cerebellar abscess he has found disturbances in past pointing of the utmost value.

Referring to the number of cells in the cerebrospinal fluid, Dr. Boot said that he had one case of temporosphenoidal abscess recover who had 6,250 cells, and another who had 16,300, so he considered the differential diagnosis between brain abscess and meningitis by means of the cell count very difficult.

Dr. Boot thought the new procedure Dr. Eagleton had outlined for cavernous sinus thrombosis sounded reasonable.

DR. HUGH T. PATRICK called attention to the fact that visual aphasia is a much rarer symptom of temporal lobe abscess than the auditory aphasia, because the center for visual speech is much higher up and further back, whereas the center for auditory speech is in the temporal lobe itself. He believed the necessity for a thorough neurological examination could not be stressed too much.

Dr. Patrick expressed the opinion that the needles customarily used in lumbar puncture are much too large. They should never exceed 1 mm. in diameter and 0.8 mm. is just as good. The dura is not very elastic and the needle ordinarily used makes a hole through which the fluid continues to flow for some time and it is this escape of fluid which makes the trouble rather than the small amount which is removed for examination. If the needle is small and only a small amount of fluid is withdrawn the bad effects of puncture, even in brain tumor, will be much less frequent.

DR. WELLS P. EAGLETON (in closing) said he thought the nomenclature on meningitis should be revised, so far as symptoms are concerned. The textbooks say there must be a stiff neck, yet there is not a stiff neck or a Kernig sign until the base is involved.

DR. HARRY A. SINGER said that in those cases of meningitis under observation in the Cook County Hospital during the past five years in which the patient either recovered or at postmortem showed but a localized meningitis, the highest count was below 10,000. The 16,000 count obtained in the case of meningitis with recovery, which Dr. Boot cited, he

believed to represent almost the upper cytological limit in cases of *circumscribed meningitis*.

DE KALB COUNTY

Dec. 30, 1924, the DeKalb County Medical Society were the guests of Rev. J. A. Solon at St. Mary's Rectory, DeKalb, Ill. Twenty-one were present.

Following a bountiful dinner at 6:30 p. m., several vocal selections were rendered by St. Mary's Boys.

After being called to order by President James S. Rankin, a motion was unanimously carried that the county society pay for a 1925 subscription to the Hygeia Magazine for each of the twelve high schools in the county.

Moved and seconded that the use of the Hygeia Magazine in the schools be commended and that a committee of three be appointed by the president to promote the subscription of Hygeia throughout the county. Carried. Dr. Roy M. Wheeler of Sycamore, Ill., was unanimously elected to membership in the society.

Judge Wm. I. Pond explained to us that bills for services in "Last Illness" had been moved from sixth to third class in the settling up of estates. The importance of this change comes where estates are insolvent.

Dr. John W. Ovitz reported a case of Pneumococcic Cerebro-Spinal Meningitis with Recovery by Use of Pneumococcic Antibody Solutions.

Dr. Geo. H. Joost reported a case of Traumatic Enlargement of the Left Ilium with Recovery.

The following officers were elected for 1925: President, Geo. W. Nesbitt, Sycamore; vice-president, S. L. Anderson, DeKalb; secretary-treasurer, Clifford E. Smith, DeKalb; censor for three years, Louise L. Culver, Sandwich.

A rising vote of thanks was given Rev. J. A. Solon for his royal entertainment.

January 29, 1925, The DeKalb County Medical Society met at the Sycamore City Hospital. Dinner was served at 12:45 P. M. Dr. Marvea D. Brown of DeKalb, was unanimously elected into membership. Dr. John A. Badgley of DeKalb, having honorably practiced medicine in DeKalb County for forty-five years, was made an Honorary Life Member. Dr. Badgley told how in making his calls in the early days, as his team slowly waded through the mud, he watched the trains pass swiftly and smoothly by and wished he had a similar method of making his calls. Dr. Badgley rejoices in having enjoyed good health and having lived to see his dream realized in the making of his calls by auto over cement roads.

Dr. R. G. Dakin has had five cases of malaria in DeKalb County and the Anopheles mosquito is sometimes found in stagnant pools in this district.

Dr. L. B. Bagnall gave a very interesting paper on Diathermy and ably led the discussion on this subject.

Dr. C. D. Carter reported an unusual case of

Lethargic Encephalitis. The case has been latent and death followed five days after tonsillectomy.

A rising vote of thanks was given Sycamore hospital for their royal entertainment.

CLIFFORD E. SMITH, Secy.

VERMILION COUNTY

Vermilion County Medical Society met in regular monthly meeting Dec. 2, 1924. Following dinner, the Scientific Session followed. There were about 60 present. Dr. E. G. C. Williams, retiring president, delivered an address on the subject "A Total Failure." His theme was that total failures would occur in every man's practice, but that instead of being discouraged and throwing up our hands helplessly, it should spur us to greater efforts of research and investigation to the end that the next time we met that condition we would come off victors.

Dr. L. C. Taylor, president of the Illinois Medical Society, delivered an instructive address on the subject "Medical Legislation in Illinois," which showed that while much had been accomplished, much remained still to be done.

Dr. Harry E. Koons, secretary-treasurer, read his reports, the latter showing a good balance on hand, while the secretary's report showed the society with 103 members and 100 per cent paid and in the secretary's hands April 7th. This is believed to be a record for this state. A great many back dues were collected to accomplish this, some as much as four years in arrears.

The new officers are as follows: Jos. C. Moore, Hoopeston, president; F. L. Hartsook, Danville, vice-president; Harry E. Koons, Danville, secretary-treasurer; C. E. Wilkinson, Danville, delegate.

Harry E. Koons,
Secretary.

Marriages

SEYMOUR JEROME COHEN, Chicago, to Miss Sylvia Kaplan of Macon, Ga., at Chattanooga, Tenn., Dec. 3, 1924.

GEORGE G. HARVEY to Miss Ruth Almaretta Whipple, both of Springfield, Ill., recently.

MORRIS WILLIAM LEV to Miss Adele Iglowitz, both of Chicago, Nov. 27, 1924.

Personals

Dr. Lewis W. Bremerman, Chicago, addressed the Academy of Medicine of Muncie recently on "Ureteral Calculi."

Dr. Hugh T. Patrick addressed the Tippecanoe

County Medical Society, Lafayette, Ind., January 7, on "Differential Diagnosis of Functional and Organic Diseases of the Nervous System."

Dr. John W. Seids has been elected president of the Moline Lutheran Hospital staff for 1925; Dr. Frank N. Davenport, vice-president; Dr. Clifford C. Ellis, secretary.

Dr. Lewis C. Taylor, Springfield, president, Illinois State Medical Society, addressed the Madison County Medical Society, Edwardsville, January 2, on "Medical Legislation."

Dr. William M. Marriott, superintendent, Children's Hospital, Washington University, St. Louis, lectured under the auspices of the St. Clair County Medical Society at the Elks Club, East St. Louis, January 8, on "Infant Feeding."

Dr. Bartlett C. Shackford, for several years the head of the pathologic laboratory of the Decatur and Macon County Hospital, tendered his resignation, effective January 1, to become head of a laboratory in Los Angeles.

Dr. Dean D. Lewis addressed the Sioux Valley Medical Association, Sioux City, Iowa, January 20-21, on "Infections"; Dr. Isaac A. Abt, on the "Treatment of Diphtheria and Scarlet Fever," and Dr. Albert H. Andrews on "Fifth Nerve Manifestations."

At the January 9 meeting of the Chicago Roentgen Society, Dr. Hollis E. Potter spoke on "A Present Day Study of the Duodenum," and Dr. Harold Swanberg, Quincy, on "A Radiologic Educational Program for the General Practitioner."

John W. Alvord has been chosen head of the advisory board to the county health department, and Dr. Samuel S. Winner, secretary. The board comprises also Drs. Herman Bundesen, William A. Evans, Ethan A. Gray, Otto S. Pavick, Herbert L. Wright and Florian G. Ostrowski.

Dr. and Mrs. A. M. Earel, of Hoopeston, sailed on S. S. California last month for a trip around the world.

Dr. D. A. Morgan, who has practiced medicine at Nilwood for the past twenty years, has accepted a position on the Medical Staff of the Central Hospital at Jacksonville, Illinois.

News Notes

—It has been announced that a \$350,000 addition to the Methodist Hospital, Peoria, will be constructed in the spring.

—A banquet was given January 16 by the Physicians' Fellowship Club at the Logan Square Masonic Temple in honor of Drs. Jeremiah H. Walsh, a trustee of the American Medical Association, and president of the Chicago Medical Society, and Dr. Jacob C. Krafft, president-elect, Illinois State Medical Society.

—It is reported that Milo M. Grimes, chiropractor, Rock Island, who was arrested last April charged with violating the state medical law for failing to report a communicable disease, was found not guilty by a jury, Dec. 17, 1924, he having pleaded ignorance of the fact that William Miller, his patient, had diphtheria.

—The General Education Board has made a conditional gift of \$2,000,000 toward the University of Chicago's endowment fund, the condition being that the university raise \$4,000,000 additional for the same purpose. The first objective of the university for 1925 in its development program is to raise \$6,500,000 for the endowment of instruction and research; the second, to raise \$11,000,000 for new buildings.

—The chairman of the board of Wesley Hospital announced, January 19, that the new Wesley Memorial Hospital will be erected on a site recently purchased at Superior Street and Fairbanks Court. Northwestern University will lease land adjoining the McKinlock Campus for one of the hospital buildings, which will be used for clinical instruction. This building will have a capacity of 400 beds, and the total capacity of the new hospital will be 1,200 beds.

—St. Luke's, Mercy, Wesley Memorial and the Chicago Memorial hospitals have installed "ticker" call boxes which provide them with two minute taxicab service. A signal is instantly recorded on a tape in the nearest agent's office, from which a taxicab is promptly dispatched. This service is identical with that used by the Western Union and Postal Telegraph companies to summon messengers. Chicago is the first city to use these call boxes in hospitals.

—The Committee on Evening Courses for Chemists of the Chicago Section of the American Chemical Society has arranged for a series of lectures on biologic chemistry, which will start early in January and continue one each week for twelve weeks. This is the only course to be presented in the winter term. Prof. Martin E. Hanke, who is associated with the department of physiologic chemistry and pharmacology, University of Chicago, will give the lectures. Those interested in enrolling are requested to communicate at once with Arthur Guillaudeu, 6536 South Campbell Avenue.

—The Council on Medical Education and Hospitals, American Medical Association, has just compiled data on hospitals in Chicago. The total number in the city is ninety-nine, of which sixty-seven are general hospitals; seven, maternity; four, nervous and mental; four, convalescent; four, industrial; three, isolation; three, tuberculosis; and one each of the following: pediatric; orthopedic; eye, ear, nose and throat; urologic; alcoholic and drug; incurables, and U. S. Marine. The total number of beds in these hospitals is 14,645, and the average number of patients in them, 10,398, making the percentage of beds occupied 71. The hospitals vary in size from 2,500 beds (Cook County Hospital) to seven beds.

—The following officers of Will County Medical Society were elected for 1925: President, Bert G. Wilcox; vice-president, John W. Krohn; secretary, G. H. Woodruff; treasurer, Roy B. Leach; delegate, H. W. Woodruff; alternate delegate, A. J. Lennon; medico-legal representative, W. R. Fletcher. Dr. Bloomfield was elected to the Board of Censors.

—Douglas County Medical Society held its annual meeting Jan. 15, 1925, for the election of officers of the society for 1925: President, H. I. Conn, Newman; vice-president, C. O. Norris, Arthur; secretary-treasurer, John O. Cletcher, Tuscola.

—Dr. G. B. Dudley, Charleston, 8th district councilman, came before the Douglas County Medical Society Jan. 15, 1925, and gave an interesting discussion on "Work Done by the Council the Past Year."

—The Chicago Dental Society held its sixty-first annual meeting and clinic at the Drake Ho-

tel, January 21-23, which was attended by dentists from all parts of the United States and Canada.

—Practically the entire population of Greenville, and persons who visited there (nearly 3,000 in all) are "down with dysentery," according to the state department of health. The outbreak was due to a faulty sewer pipe which allowed sewage to seep into the tile water main.

—Dr. William Allen Pusey, President, American Medical Association, addressed the Chicago Dermatological Society at its twenty-fifth anniversary meeting, January 21. Dr. Pusey, a charter member of the society, was the guest of honor; other charter members present were Dr. David Lieberthal and Dr. Lucius C. Pardee. Dr. James H. Mitchell, president of the society, read a paper on "The Institutionalization of the Practice of Medicine."

—The board of trustees of Northwestern University, January 27, appointed Dr. Irving S. Cutter, Omaha, dean of the medical school. Dr. Cutter has since 1913 been professor of biochemistry and director of laboratories, and, since 1915, dean of the medical school at the University of Nebraska. He was editor of the *Nebraska State Medical Journal*, 1916-1918, a captain in the medical Corps, U. S. Army, 1918-1919, and is now a lieutenant-colonel in the medical officers reserve corps. Dr. Cutter will take up his work at Northwestern in June or July.

—The Chicago Council of Medical Women, a comparatively new group of physicians assembled for the purpose of collating their professional experience, is showing progress. Dr. Bertha Van Hoosen's admirable symposium for the year on Hemorrhage was continued in the January meeting giving particular attention to surgery. Dr. Alice Conklin presented surgical risks in diabetes, jaundice, hemophilia and disturbances of normal blood pressure. Dr. Lena K. Sadler made an excellent presentation of hemorrhage during operation and a summary of all methods of hemostasis. (A surgeon who ties a "granny knot" would not be able to hold up his head in this assembly.) The president of the Council, Dr. Anna Blount, reviewed postoperative hemorrhage with clinical illustrations. The discussion was well rounded and made emphatic by

Dr. Van Hoosen by such telling phrases as "regulation of coagulation time," "cooperative automation," "camel of a colon," all of which will be read with interest in the formal publication of papers and discussions.

Deaths

NORMAN BRIDGE, emeritus professor of medicine, Rush Medical College, Chicago, died in Los Angeles, January 10. Born in Vermont in 1844, Dr. Bridge entered the University of Michigan Medical School, Ann Arbor, in 1866, graduating from the Chicago Medical College in 1868 and from Rush Medical College in 1878. Almost immediately after graduation, he became a member of the faculty at the Chicago Medical College, and a few years later entered the faculty of Rush, with which he was connected until the time of his death. In 1872 he was one of the publishers of the first volume of the Chicago Medical Register and Directory, and later became an associate editor of the *Chicago Medical Journal and Examiner*. Dr. Bridge was instrumental in building the Cook County Hospital and later the Presbyterian Hospital; he was a member of the Chicago Board of Education, 1881-1884; president, 1882-1883, and a member of the board of election commissioners from 1886 to 1890. He gave up a large practice in Chicago in 1892 on account of poor health and moved to Los Angeles. Here he held various public offices, among them membership on the board of freeholders which framed the new charter for Pasadena. He was one of the pioneers in tuberculosis work in southern California, and the author of "Lectures on Tuberculosis," "The Penalties of Taste," "The Marching Years" and many essays contributed to medical journals and books. Dr. Bridge was honored by many colleges and scientific societies, and was a Fellow A. M. A.; a member of the Illinois State Medical Society, the American Climatological and Clinical Association, the Association of American Physicians and the Chicago Institute of Medicine. He founded and endowed the Norman Bridge Laboratory of the California Institute of Technology, and made large gifts to Rush Medical College and other educational and charitable institutions.

ALEXANDER LESLIE BLACKWOOD, Chicago; Hahnemann Medical College and Hospital, Chicago, 1888; a Fellow A. M. A.; member of the American College of Physicians; senior professor of materia medica and clinical medicine at his alma mater, 1899-1922; formerly vice-president of the board of education; author of "Diseases of the Heart" and "A Manual of Materia Medica, Therapeutics and Pharmacology"; aged 62; died, Dec. 30, 1924, at the South Chicago Hospital, from the effects of a carbuncle and diabetes mellitus.

THOMAS MICHAEL BUCKLEY, Chicago; Long Island

College Hospital, Brooklyn, 1891 a Fellow A. M. A.; aged 72; died suddenly, Dec. 29, 1924, of heart disease.

JOSEPH PETTEE COBB, Chicago; Hahnemann Medical College, Chicago, 1883; adjunct professor, 1889-1893, professor of physiology, embryology and histology, 1893-1898, senior professor of pediatrics since 1898, president and formerly dean at his alma mater; on the staff of the Chicago Memorial Hospital (formerly the Hahnemann Hospital); at one time president of the American Institute of Homeopathy; aged 67; died, Dec. 23, 1924, of uremia, following nephritis and heart disease.

THOMAS WALTER CURRY, Streator, Ill.; Northwestern University Medical School, Chicago, 1898; a Fellow A. M. A.; aged 53; died Dec. 13, 1924, at London, England.

WENCESLAUS JOHN DVORAK, Chicago; Rush Medical College, Chicago, 1896; a Fellow A. M. A.; aged 61; died, January 1, of carcinoma of the bladder.

ALEXANDER GRAY, Savanna, Ill.; Rush Medical College, Chicago, 1899; a Fellow A. M. A.; aged 56; died suddenly, Dec. 29, 1924, of heart disease.

ROBERT HENRY KEYES, Hopedale, Ill.; College of Physicians and Surgeons, Keokuk, 1883; aged 62; died Dec. 11, 1924, of cerebral hemorrhage.

ROSE E. MCCAGHNA, Chicago; University of Michigan Medical School, Ann Arbor, 1890; aged 67; died, Dec. 12, 1924, of heart disease.

JAMES M. MILLER, Techny, Ill.; Jefferson Medical College of Philadelphia, 1868; aged 81; died, Sept. 15, 1924, of pernicious anemia.

HOWARD MITCHELL PANKEY, Shawneetown, Ill.; Loyola University School of Medicine, Chicago, 1922; aged 28; died, Dec. 8, 1924, at Denver, of tuberculosis.

ELIJAH M. ROTRAMEL, West Frankfort, Ill. (licensed Illinois, 1878); aged 81; died, Dec. 27, 1924, of carcinoma of the stomach.

DARWIN DELOS CULVER, Aurora, Ill.; Chicago Homeopathic Medical College, 1894; a Fellow A. M. A.; president of the Kane County Medical Society; aged 56; died, January 11, of heart disease.

JUDSON T. WEBSTER, Atlanta, Ill.; Hahnemann Medical College and Hospital, Chicago, 1889; Harvey Medical College, Chicago, 1896; aged 73; died, January 10, of cerebral hemorrhage.

GRACE LYNDE MEIGS CROWDER, Chicago; Rush Medical College, Chicago, 1908; member of the Chicago Pediatric Society; served as director, Division of Hygiene, Children's Bureau, U. S. Department of Labor, Washington, D. C., 1914-1918; formerly member of the Commission on Infant Welfare, General Medical Board, Council of National Defense; author of works on child welfare; aged 43; died, January 20, of injuries received in jumping from the window of a hospital while suffering from ill health.



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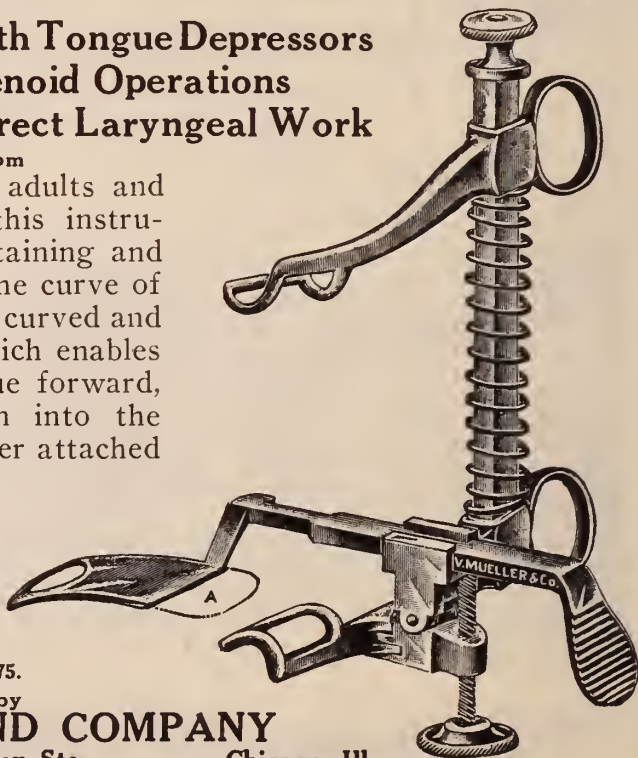
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Editorial

PRESENT DAY MEDICAL EDUCATION A FARCE—THE QUESTION OF MEDICAL SERVICE FOR ORDINARY PEOPLE IS THE BIGGEST PROBLEM WE HAVE

From all sides comes a plea for that change in medical education which will refill the rapidly depleting ranks of general practitioners.

The laboratory and the supertrained theorist should have been displaced long since for clinical medicine and the health needs of a large and suffering people.

Twenty-five years ago, the Council on Medical Education of the A. M. A., stepped in and rescued medical teaching from a disorganized state that was next door to chaos, and arranged this vital element of civilization in an orderly efficient condition. Minimum requirements were raised and teaching standardized. Upon this sound basis was built American medical supremacy. But it has had one backfire and that a bad one.

For product of this supersystem seems to be more on the qui vive for the theory of medical practice, rather than for medical practice, itself. Everywhere there is a sufficiency of the most able specialists of which civilization has ever dreamed, but there is a most unfortunate paucity of ordinary men who are willing to get out and take care of ordinary people in ordinary places. And these ordinary people in ordinary places constitute at least half of the country's population.

It is in this regard that Dr. W. A. Pusey says: "The question of medical service for ordinary people is the biggest problem we have."

A large part of this problem comes under the sectionalization—"Rural," in accordance with the classification by the U. S. Census Bureau of population in places of 2,500 or less. Since much of this rural population is within easy access of cities, and can secure medical attention

from centers of population, it is probably only about half of the rural population, or about 26,000,000 people who fall into that section of physicianless residents.

In twenty-five years schools have been reduced fifty per cent. in number and while the places for study have been thus reduced, the requirements for entrance and their post entrance demands have increased about 200 per cent. The cost of medical education today is prohibitive, productive of specialists and barren, comparatively speaking of "general men."

As the general medical practitioners pass out in the routine of time they are not being replaced.

There is a general understanding that the medical students everywhere are led to believe and are encouraged to feel that the pathological and allied laboratories are of transcendent importance. Further that dignified medical students, while yet undergraduates, consider that the only proper place in which to practice medicine is inside or at least within the shadow of a Class A hospital.

As a result look at the situation throughout the country. A physician's worth is measured by the capability and extent of his community service. The keynote of the profession is sacrifice. Its monetary rewards are laughable in the face of the immeasurable benefits conferred upon humanity. The discoverer of insulin has been allowed by his government a life annuity of \$7,500, or a sum that is only a moderate interest on \$150,000. Yet the inventor of a method of autographing films as pictures are taken receives, so the information comes, \$200,000 for his patent rights. Walter Reed, the discoverer of the means of transmission of yellow fever, died with the knowledge that the future of his family was not provided for. Yet look at the profits made by bootleggers, and by manufacturers of cheap automobiles. Yes, the men of medicine learned long since that a synonym for their profession is "sacrifice." There is little but spiritual good to be gained in many instances from the faithful practice of this great profession. But it is because so many pioneer physicians of America had this steadfast gift of vision that medicine in America leads medicine throughout the world.

Is the light of the lamp of their idealistic altruism and human service to flicker and fade?

Certain figures would seem so to indicate. It costs so much now to be a doctor that a man has to be a specialist in order to make a living and as a result the country is flooded with so many specialists and swept free from so many general men that the situation is partaking of the element of the absurd. At the rate we are going it will not be very many years before the aggregation of specialists called into attend a case of typhoid fever will register a man for every organ, and every member, and every system involved in the human body.

Where will the citizenry find the money to pay these men? The citizenry won't. For by that time the citizenry will all be dead or dying as a result of conversion to the quacks and charlatans, keen enough to step in and take advantage of the tasks done by the former ranks of general practitioners and neglected now by the cohorts of specialists.

The fundamental error lies in the expense and extension of the years of medical education. Without in any way lowering the minimum standards for entrance into the profession there could be some feasible system of a short general course evolved so that a man with a working knowledge of general medicine could be sent out to keep well and to heal some of the people in the physician barren communities. Take for instance New York State where it has been found that there are areas of several hundred square miles without one single resident physician and with a population of from 1,500 people upwards. Or in Wisconsin where one county with a population of 3,646 has one physician, and another, with 19,462 has three. Or in West Virginia with six doctors, three of whom are past seventy years of age in attendance upon 11,713 people. Or in Vermont, where out of 248 towns there was 102 without physicians. Or in Tennessee, where there are counties of from 7,000 to 8,000 people with not more than four doctors. In York County, Pennsylvania, there are 37 physicians to serve a rural population of 100,000. North Carolina says it has fewer physicians than any other state in the union, with possibly one or two exceptions.

In Montana, a bonus of \$100 per month offered by one county has not attracted a single physician. Louisiana has a county where the ratio of physicians to patients is one to 1,385, and in the state of New Mexico the ratio of phy-

sicians to population is 1 to 2,000, and in Mississippi it is 1 to 1,120, and there are many counties with a population of from 20,000 to 30,000 where the physicians are only in the large centers, leaving the interior without a single resident physician. In Sussex County, New Jersey, where from one to two physicians formerly lived there are now none. In Washington, no physicians in the rural counties have been in practice for less than ten years, and in a few counties there is an absolute absence of medical service. In one West Virginia county of 9,600 population the five physicians have been in practice from twelve to thirty-three years. In Kansas, of twelve counties with twenty physicians, only one is a recent graduate.

Obviously there is need for some movement that will tend to make recent graduates seek practice outside of the large centers of population. The keynote would seem to lie in the minimized general course that could be obtained at from \$2,000 upward instead of the present supertraining that must cost from \$10,000 upward.

The universal tendency of physicians to abandon rural districts for city practice has left country practice principally in the hands of old men. The galled horse seems to have balked at last!

One reason for this is that medical education and medical service as they are effected in America today are so expensive, first to obtain and second to give, that the rural communities can not afford to pay what the supertrained physician has to give. The solution would seem to lie in a quota of less expensively trained but comparatively adequate medical service to meet this problem, with the understanding that a medical man's education shall not cease with his obtaining of his diploma but that it shall continue at later intervals.

The pivot of this supertraining lies in the preliminary training demanded of physicians. The question at issue would seem to be the dispensing with the four years of collegiate study and permitting men with thorough high school training to commence the study of medicine. This would eliminate one of the factors in the excessive cost of medical education, yet a factor whose influence is in accordance with the experience of the simplest economic and social principles. Not all men need take this fore-shortened course. But unless some action of this

sort is taken the practice of medicine will continue to be what it has become, a luxury for the wealthy. Seven years of technical training means seven years out of the ablest period of a man's life. It means, too, surrounding a young man, at his impressionable period with too much environment and not enough humanity.

As has been said wisely enough in an editorial in *The Saturday Evening Post*: "The real pest among reputable physicians is the young man who expects his patients to pay for his needlessly high overhead expenses. He may be known by his spacious and elaborate offices and waiting rooms, buttoned door boys, sleek secretaries, fluttering office nurses, and powder monkeys of both sexes, and an all pervading shimmer of white enamel mechanical novelties and glittering metal work. Not infrequently the young practitioner who indulges in all these fripperies is trying to put over a poor piece by means of costly stage effects. He sometimes forgets and his patients still oftener fail to realize that what he has for sale resides in his own cranium and that mere style, atmosphere and scenery are poor substitutes for knowledge, experience and technical proficiency."

In epitomizing the situation it is well, further, to quote Flexner: "The question is not merely to define the ideal training of the physician: it is just as much at this particular juncture, to strike the solution that, economic and social factors being what they are, will distribute as widely as possible the best type of physician so distributable."

A FEW DETAILS OF SERVICE BY THE LAY EDUCATION COMMITTEE TO MARCH 1, 1925

The Speakers' Bureau has supplied 219 medical speakers to lay organizations in Illinois. Material was furnished by the Lay Education committee and traveling expenses paid for about one-third of the number. Approximately two-thirds of the volunteers donated both time and expense.

Moving picture films on health subjects have been supplied to 97 audiences.

Letter campaigns for the periodical health examination have been handled for sixty-six individual physicians and organizations of physicians.

Three hundred and five newspapers have used some form of press release built around news

activities, not academic instruction or propaganda.

Twenty-four radio talks have been given from three stations in Chicago.

Contacts have been made and working agreements entered into with fourteen organizations doing state-wide volunteer health work in Illinois. These working agreements provide flexibility in adapting health education to the needs of the county medical society and the practicing physician.

Successful Health Conference, with a full program of competent medical speakers have been given in conjunction with the Illinois Federation of Woman's Clubs at Urbana and East St. Louis. An All-Community Health Pageant will be given in Chicago on March 13 and 14, with the co-operation of the Chicago Dental Society, the Chicago Retail Druggists Association, the Chicago Health Department and the State Department of Health. More than 5,000 advance tickets have already been reserved.

Conferences with the Illinois Association of Graduate Nurses have been held at Alton and Rock Island.

Forty-three counties have been visited and some form of community educational work established in thirty-nine. 187 medical societies, meetings and committees have been attended and addressed by the director. Forty-one lay audiences have been addressed on the general subject of co-operation with the medical profession.

Assistance has been given in the organization of five woman's auxiliaries. More than 800 physicians have been personally interviewed for material and advice on Lay Education. Exhibits have been organized for thirteen school and community affairs. Every committee of the state council has in some way made use of the Lay Education department.

The work has barely begun, but it has begun to show concrete returns in co-operation from lay groups. It must be personalized and carried through to the point of service to every individual member of this society, as well as the broader interests of the medical profession.

DO YOU WANT THIS WORK TO GO ON?

WILL YOU HELP?

Write to the Lay Education Committee
25 East Washington Street,
Chicago.

DO CROWDED CENTRAL MARTS CONSTITUTE A MENACE TO PUBLIC HEALTH?

Competent authorities question the advisability of central shopping centers with consequent over-crowding, promiscuous assemblage and tendency to disseminate germs of disease. The medical profession has been asked to endorse a discontinuance of this custom.

Possibly large assemblages, including people from all parts of a community may be material factor in the distribution of infection. But the matter is of such far reaching importance, and has so many and such various contingencies that it should be studied from all sides.

There is an element of dubiousness in the proposed inauguration of a campaign for people to trade at the stores in their immediate vicinities instead of the central marts, such as Chicago's congested loop district with practically every nationality under the sun, and every germ in the list, finding continuous representation in the throngs that swarm through the trillion dollar shopping district. Less crowded, smaller, and less promiscuously patronized neighborhood stores might, it is true, be effected in minimizing one of the real menaces to individual and to community health."

Before the medical profession complies with this suggestion of endorsing a campaign, to "Trade away from congested centers." Careful and unprejudiced consideration of the matter must be the fore-runner of any organized movement.

It will be of moment and interest to have an expression of opinion in this regard, from our readers.

SHALL WE CONTINUE TO CENTRALIZE MATTERS IN WASHINGTON?

"Were we directed from Washington when to sow, and when to reap, we should soon want bread."

—Thomas Jefferson.

LEE S. OVERMAN

Junior Senator from North Carolina.

The last general election was won without regard to issues, but solely upon what the people believed to be the qualifications of one man.

Early in the campaign, Republican politicians realized that they could not hope to go before the people on a Republican record. Hence, the

cry arose—"Coolidge is the issue." No other claim must be made, and none other was.

There can be no mistake that a **great** majority of the nation gave Mr. Coolidge a most solemn mandate. In the minds of the voters, he was divorced from his party to begin with. It was Coolidge that was returned to the Presidency; there was no mandate to the Republican politicians. Therefore, Mr. Coolidge's responsibility is exceedingly great.

THE PARLOR "PINKS"

But the recent election demonstrated another matter of vital national importance, and that is, the lack of confidence the people expressed in political parties as such.

Why this lessening of respect for the old-line parties? The situation indicates that there must be a need of house cleaning within party ranks. It indicates further that parties have been drifting away from fundamental principles that have always captured the affection of the masses.

I shall not attempt to say much in this article about the Republican party, but will point out briefly just a few things that I believe we Democrats could ponder over with a great deal of profit to ourselves.

In the first place, the Democratic party should firmly resolve that its age-long policy of thorough Americanism should be strictly adhered to. It should take a thorough stock of itself and stand against the siren calls of the parlor "pinks"—be they masculine or feminine—that have been so perniciously active in the United States for the last few years.

Let there be no confusion about this statement. There is ample room in the Democratic party for wholesome, progressive, American ideas. The progressive legislation passed during the first Wilson Administration fully evidenced the fact that the Democratic party is a progressive party—progressive in the sense that it responds to the will and needs of the American people in a sane and judicious manner. There is a great deal of difference between such a policy and being captivated (or browbeaten) into support of measures that have originated under influences entirely un-American, measures that are not only unsuited to American needs but are fraught with great danger.

MORE GOVERNMENT AT HOME

Let me illustrate by briefly referring to the proposed amendment to the Constitution known as the Child Labor Amendment. This amendment proposes "to limit, regulate or prohibit the labor of all persons under eighteen years of age." At present this power resides in the respective states and this amendment undertakes to transfer such power to the Federal Government. It will be noted that, in reality, *this amendment is not a child labor amendment*, but might more properly be called a "*child control*" amendment. It is most general in its scope and is probably the greatest grant of power that has ever been proposed for any general government in the same number of words.

It does not attempt to regulate the employers of children under eighteen years of age, the conditions under which they shall work, but it seeks, rather, to control the child and any manner of work in which he might become engaged, whether with or without compensation.

There is convincing evidence that this idea originated in Russia during the Bolshevik régime and has been transplanted in America. Congress seemed to handle the matter rather gingerly and evidently thought it must pass some such measure before the election, and, therefore, "passed the buck" to the states. It is fervently to be hoped that the respective legislatures will fully understand the import of this proposition before they come to a vote on it. But to begin with, legislators will have to make up their minds to steel their hearts against wily propaganda and clever lobbying. No stone will be left unturned to force this monstrosity upon the American people.

Such legislation as this can well be left to the several states. North Carolina has already refused to ratify. North Carolina also boasts of an excellent child labor law and it had my support in its passage and I take pride in its enforcement.

But here is where the Democratic party comes in:

The Democratic party was born the champion of States' Rights. We have had periods in our history when we have wandered away, and we occasionally have cause to think over "a frequent recurrence to fundamental principles."

One of the greatest causes of unsatisfactory

conditions in the United States is the fact that we have wandered away from the principles of States' Rights. We should get the idea into our minds that we need *a little more government at home and a little less in Washington*. Thomas Jefferson never uttered a truer saying than that

"It is not by the consolidation, or concentration of powers, but by their distribution, that good government is effected."

Concentration of power will inevitably result in abuse of that power to some extent.

There has been far too great a tendency to pass on to Washington disagreeable tasks and asking the general government to find the solution. We need some good old-fashioned home-grown Democracy in America today, the spirit that will move people to look around home a little and see if they cannot do some of their own governing.

There is no safe basis for judging just how far this concentration of power and government at Washington will go. Even now we are confronted with a proposition regarding education that will, if heeded by Congress, finally result in the nationalization of our public school system. If there is anyone who doubts that the respective states of this Union are sufficiently able to take care of the education of their children and provide adequate public school facilities, I invite such individual to visit my native state and there see the rapid progress North Carolina has made in her public school system within the last decade. Today the Old North State has a public school system of which any commonwealth could be proud. It is growing and improving, and we intend to be second to none in these great United States. And it is doubtful if we now are. But we would never have made the progress we have if we had depended on Washington.

TOO MANY LAWS

Nationalize! Centralize! These seem to be the slogans of individuals who do not understand what the fundamental American system is, and who would like to change our system after a foreign pattern. Why we fought the Revolution to escape a concentration of power unwisely used. Our forefathers were determined that they would make no such mistake in America. Power was to be wisely distributed and jealously guarded.

Harken again to Jefferson:

"Were not this great country already divided

into States, that division must be made, that each might do for itself what concerns itself directly, and what it can so much better do than a distant authority."

And again:

"Were we directed from Washington when to sow, and when to reap, we should soon want bread."

Again:

"When all government, domestic and foreign, in little as in great things, shall be drawn to Washington as the center of all power, it will render powerless the checks provided of one government on another, and will become as venal and oppressive as the government from which we separated."

The tendency toward centralization at Washington was critically observed more than a century ago, but there has been little to halt the onward march.

But one thing will halt it—the American People; they alone can halt it. When they see their home affairs taken away from them one by one, intrusted to the tender and distant mercies of bureaucratic administration, they are going to resurrect Democratic doctrine on this question, and adopt it. States' Rights is no longer a partisan nor a sectional but an American doctrine in which even Republicans have come to believe. Washington itself will be forced by the very burden which centralization imposes, to warn the people not to be misled in giving away their rights. Not every problem that faces the country can be met by the simple expediency of more Federal legislation.

We have too many laws now. We are confronted today with the necessity of farm relief legislation, an obligation that members of Congress cannot ignore. But, farm relief legislation becomes necessary today because so much of special privilege legislation has preceded it. If other interests, using special legislation inuring to their benefit, had not brought about the present economic situation, the farmer would not be facing a condition that requires legislation for his benefit!

The nation needs legislation to undo some of the legislation already enacted. The American people should have a fair chance to manage their own affairs. We should check the growing tendency of our government to pry into our most

private affairs, to take over the operation of our homes, and to dictate the conduct of our families. Americans do not want too much governing, and once they get the proper channel through which to express their resentment of it, they will make it clearly and unmistakably known. The Democratic party should become the means for that expression.

NORTH CAROLINA'S STAND

We need to return to some old-fashioned Democracy! which simply means in other words, "Back to the fundamental principles of the Constitution."

It will be remembered that my state was responsible for the Tenth Amendment to the Constitution, which reads:

"The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."

North Carolina was unwilling to leave this important question to future interpretation, and, together with Rhode Island, refused to enter the Federal Government until November, 1789, nearly a year after its formation under the Constitution, and would not enter until this amendment was adopted. There were other states just as concerned over its incorporation, but entered the Federal Government upon assurance that it would be put in. However, North Carolina wanted it "written in the bond." Therefore, it may occasion no surprise if North Carolinians have firm convictions in regard to it today. The Old North State just as jealously favors the guarding of her rights today as she did in 1789.

Dearborn Independent, January 31, 1925.

WHY DO WE HAVE TO FIGHT SUCH FREAKS?

One sometimes wonders, when we are annually compelled to fight against some of the bills introduced into the state legislature, why public officers, keen and astute lawyers and clear headed business men are so easily influenced by interested propagandists, professional uplifters, professional philanthropists, sensationalists, sob-statisticians, professors of non-serious subjects, pseudo-medical diletantists, star-gazers and so-called reformers—all of whom are afflicted by mental mixed astigmatism whereby they are

neither able to see clearly and distinctly in any pane or at any distance.

LAY DICTATION OF MEDICAL PRACTICE

The Volstead act is a sample of the viciousness of lay dictation in medicine. Here we have an illustration of a legislative body without knowledge of the subject, pronouncing on the uselessness of alcohol as a drug, has prescribed its dosage and has compelled the violation by the physician of the confidences of his patient in order to secure even the amount which is allowed.

INTERSTATE POST GRADUATE ASSEMBLY CLINIC TOUR TO EUROPE

The Interstate Post-graduate Clinic Tour of American Physicians to Canada, the British Isles and France next May is rapidly developing into the most remarkable expedition of the sort ever undertaken. The total cabin accommodation of the new White Star Line S. S. "Doric" has been chartered for this trip and already 476 of the 602 berths have been assigned.

At the present rate the ship will be filled in about three weeks. Those who are interested in going should make their reservations as soon as possible by sending a deposit of \$65.00 to the Managing Director of the Association, Dr. William B. Peck, Freeport, Illinois.

THE ATLANTIC CITY SESSION

ENTERTAINMENT FOR THE LADIES AT ATLANTIC CITY

The Local Committee of Arrangements at Atlantic City, through Mrs. Worth Clark, chairman of the Women's Committee of Entertainment, announces that plans are being made to provide entertainment for the wives and daughters of Fellows, so that their visit to Atlantic City during the annual session of the American Medical Association will be made as pleasant as possible. The indications are that many Fellows will be accompanied to Atlantic City by members of their families.—*Jour. A. M. A.*, Feb. 28, 1925.

ALUMNI REUNIONS

Secretaries of alumni associations, college classes, etc., are requested to send as early as possible to the Secretary of the American Medical Association information concerning banquets, reunions or other meetings that are to be

held in Atlantic City during the coming annual session.—*Jour. A. M. A.*, Feb. 28, 1925.

REDUCED RAILROAD FARE TO ATLANTIC CITY

The rate of one and one-half fare for the benefit of members and Fellows of the American Medical Association who will attend the annual session in Atlantic City, May 25-29, has been granted by the railroads. The member, when purchasing his ticket, pays the full one way fare to Atlantic City, at the same time securing his certificate from the railroad agent. This certificate will be approved at Atlantic City by the Secretary of the Association, must be validated by a representative of the railroads, and will then entitle the holder to a return ticket at one-half fare. The validation desk will be located near the Registration Bureau on the Steel Pier.—*Jour. A. M. A.*, Feb. 14, 1925.

AMERICAN MEDICAL GOLFING ASSOCIATION

The Eleventh Annual Tournament of the American Medical Golfing Association will be held at Seaview Golf Club, Atlantic City, Monday, May 25.

Dr. D. Chester Brown, Danbury, Conn., is president, Dr. Walt Conaway, Atlantic City, is secretary-treasurer, and John Walter, Evanston, Ill., is business secretary of the American Medical Golfing Association.

Any Fellow of the American Medical Association may join the American Medical Golfing Association by paying the enrollment fee and subscribing to the by-laws. Application for enrollment should be sent to John Walter, 1507 Hinman Avenue, Evanston, Ill.—*Jour. A. M. A.*, Feb. 14, 1925.

MEDICAL BILLS BEFORE THE ILLINOIS LEGISLATURE OF INTEREST TO PHYSICIANS

The following bills are before the Illinois Legislature. They are sent us by the chairman of the Legislative Committee, Dr. J. R. Neil, Springfield, Illinois, to whom all communications should be addressed. Comments are invited and if any one is interested in any specific measure copy of the bill will be sent to him, upon request to the chairman of the Legislative Committee.

Amends section 1 of the municipal tuberculosis sanitarium Act by increasing the maximum tax from one mill to one and one-half mills.

Jan. 27. Introduced. Committee on Municipalities. S. B. 44. Ryan, Frank J.

Provides for the issuance of certificates of registration as a registered natureopath by the Department of Registration and Education, and fixes qualifications for applicants, which certificates are required for the practice of massage or natureopathy after October 1, 1925.

Feb. 4. Introduced. Committee on Public Health.

Comment: This bill rests at the present time. There is an increasing resistance noticeable among the barbers and it is their intention to fight the bill very actively by sending a proper representation to Springfield. There is no need for any great activity on the part of the Medical Society regarding this measure at this time, as it undoubtedly will be a case of euthanasia. (The stenographer in taking notes misunderstood this term and wrote "youth of Asia," which probably explains the situation equally as well as the bill probably has just as much chance as a youth in a foreign country.)

S. B. 47. Barr.

Amends Workmen's Compensation Act, extending provisions of act so as to include enterprises in which sharpened tools are used or handled. Extends meaning of the term "employee" so as to include persons whose employment is outside of Illinois, if the contract of hire was made within the State of Illinois. Increases the amount of compensation to be paid employees for injuries. Provides that employer shall furnish competent physician to render first and subsequent aid. Provides that pending final determination of any controversy before an Arbitrator or the Commission, such Arbitrator or Commission may make interlocutory findings, orders and awards.

Feb. 4. Introduced. Committee on Judiciary.

S. B. 58. Denvir.

Amends section one of Article V of Cities and Villages Act enumerating powers of the city council in cities and the president and board of trustees in villages to provide: Sixty-seventh: To provide for the inspection of steam boilers, air tanks, ammonia tanks and other dangerous tanks; seventy-sixth: To appoint a board of health, and prescribe its powers and duties or to establish a department of health with like powers in the head thereof; ninety-first: To tax, license and regulate auctioneers, distillers, breweries, lumber yards, coal yards, livery stables, public scales, ice cream parlors, coffee houses, restaurants, hotels, detective agencies, private detectives, money changers and brokers.

Feb. 10. Introduced. Committee on License and Miscellany.

S. B. 73. Boehm.

Adds section 6a to Division I of the Criminal Code to prohibit the advertising, selling, or giving away or the writing or printing of any letter, circular, etc., giving information to prevent conception, and provides penalty.

Feb. 11. Introduced. Committee on Judiciary.

S. B. 82. Roos.

Provides for the formation, government, operation and dissolution of mosquito abatement districts in any part of the State to facilitate the extermination of mosquitoes, flies and other insects, and for the assessment, levy, collection and disbursement of taxes therein.

Feb. 11. Introduced. Committee on Municipalities. S. B. 115. Deck.

Amends section 6 of "An Act relating to children who are now or may hereafter become delinquent,

to define these terms, and to provide for the treatment, control, maintenance, adoption and guardianship of the persons of said children," approved April 21, 1899. Provides for the appointment of probation officers to be paid by the county.

Feb. 18. Introduced. Committee on Fees and Salaries.

S. B. 116. Glackin.

Creates the office and authorizes the appointment of county health superintendents. Appropriates \$50,000 to Department of Public Health to pay one-half of the salary of county health superintendent in any county under this act.

Feb. 18. Introduced. Committee on License and Miscellany.

Comment: This bill will be published in full in our next bulletin.

S. B. 117. Jewell.

Amends sections 1, 2, 3 and 5 of "An Act to regulate and limit the hours of employment of females in any mechanical or mercantile establishment or factory, or laundry, hotel or restaurant, or telegraph or telephone establishment or office thereof, or in any place of amusement, or by any express or transportation or public utility business, or by any common carrier or in any public institution, incorporated or unincorporated, in this State, in order to safeguard the health of such employees, to provide for its enforcement, and a penalty for its violation," approved June 15, 1909. Provides eight-hour working law for women and makes certain exceptions.

Feb. 18. Introduced. Committee on Corporations and Industrial Affairs.

S. B. 120. Lantz.

Repeals "An Act to prohibit the establishing and enforcing of the tuberculin test for dairy animals by any city, village, incorporated town, county or other corporate authority in the State of Illinois," filed June 12, 1911.

Feb. 18. Introduced. Committee on Agriculture. Live Stock and Dairying.

H. B. 6. Choisser.

Provides for the formation and disbursement of a pension fund for aged persons, and an annual tax of one-half mill on all taxable property within the State. Fund is to be administered by the Industrial Commission under the name and style of Old Age Pension Commission with the aid of the respective County Pension Agents.

Jan. 28. Introduced. Committee on Judiciary.

H. B. 29. Soderstrom.

Amends Workmen's Compensation Act. Among other things provides that "employer shall furnish competent physician to render first and subsequent aid."

Jan. 28. Introduced. Committee on Insurance. Feb. 17. Committee on Judiciary.

H. B. 58. McClugage.

Amends sections 1, 2, 3, 4, 5 and 6 of the act relating to schools for crippled children, to include boards of school directors.

Feb. 4. Introduced. Committee on Education.

H. B. 59. McMackin.

Amends section 1 of "An Act to provide for wash rooms in certain employments to protect the health of employees and secure public comfort," to require washrooms to be in all railroad roundhouses, terminal passenger stations and yard offices.

Feb. 4. Introduced. Committees on Industrial Affairs.

H. B. 73. Choisser.

Adds section 14a to "An Act to revise the law in relation to the regulation to the practice of embalming," to provide that no ambulance or other vehicle which is used for the transportation of sick or injured persons shall be used to transport dead human bodies.

Feb. 4. Introduced. Committee on Judiciary.

H. B. 82. Choisser.

Provides for one day of rest in seven for employees in certain employments.

Feb. 10. Introduced. Committee on Judiciary.

Comment: Physicians are not included.

H. B. 86. Green.

Provides that if a proposed amendment to the Federal Constitution is duly submitted to the General Assembly, and is not ratified at the session at which it is submitted, that the question of ratification be submitted to the people.

Feb. 10. Introduced. Committee on Elections.

Comment: Obviously an unwarranted measure. A beautiful way for the legislature to pass the buck. Sheppard-Towner, Child Labor and other exponents of Federal Subsidies undoubtedly will indorse this measure.

H. B. 119. Curran.

Makes appropriation and distribution to the Department of Public Welfare for the support, operation, maintenance and expenses of the several State charitable, penal and reformatory institutions and other divisions of the Department of Public Welfare, until the expiration of the first fiscal quarter after the adjournment of the next General Assembly, of \$25,-434,593.

Feb. 12. Introduced. Committee on Appropriations.

H. B. 120. Fekete.

Amends sections 1, 2, 4, 6, 7 and 12 of "An Act in relation to the regulation of the practice of optometry," providing for the issuance of certificates of registration as registered optometrist, and fixing qualifications of applicants.

Feb. 12. Introduced. Committee on Judiciary.

H. B. 136. Reeves.

An act in relation to the eradication of tuberculosis among cattle, providing that county boards may appoint a county veterinarian. Provides for the making of tests, destroying of infected cattle and imbursement to owner.

Feb. 17. Introduced. Committee on Agriculture.

H. B. 137. Reilly.

Amends sections 1 and 3 of "An Act authorizing cities and villages to provide for the payment of allowances of money to the families of dependents of policemen and firemen killed or fatally injured while in the performance of their duties." Approved June

27, 1921, to provide for the creation of a trust to conserve the funds so paid.

Feb. 17. Introduced. Committee on Municipalities.

Comment: Undoubtedly a humane measure, but not very far removed from "State Medicine" ideas.

H. B. 153. Booth.

Amends section 10 of "An Act to provide for the partial support of mothers, and for the probationary visitation, care and supervision of the family for whose benefit such support is provided," as to the qualification of such mother when she has but one child under the age of 16 (now 14) years.

Feb. 18. Introduced. Committee on Judiciary.

H. B. 169. LaPorte.

Amends section 16 of "An Act to enable cities and villages to establish and maintain public tuberculosis sanitariums," approved March 7, 1908, to permit the levy of a tax of not to exceed two (now 1 1-3) mills.

Feb. 18. Introduced. Committee on Municipalities.

H. B. 176. Tice.

An act to provide for the eradication of bovine tuberculosis by means of quarantine and otherwise, and providing penalties for violations of the provisions thereof. Provides for tuberculin tests under the direction of the Department of Agriculture.

Feb. 18. Introduced. Committee on Agriculture.

H. B. 182. Abbey.

Appropriates \$1,153,397 to provide for the ordinary and contingent expenses of the Department of Public Health until the expiration of the first fiscal quarter after the adjournment of the next regular session.

Feb. 19. Introduced. Committee on Appropriations.

ERRONEOUS STATEMENT RELATIVE TO THE SHEPPARD-TOWNER ACT

The publicity department for the Children's Bureau of the United States Department of Labor announces that \$1,688,047.12 has been expended by federal and state governments in the carrying out of the Sheppard-Towner Act, or the so-called federal Maternity and Infancy Act, during the first fifteen months following its passage. The federal grants to the states have totaled \$1,046,523.56, and the state appropriations \$641,523.56. Forty-three states cooperated in 1922, and forty-one states in 1923. The number for 1924 includes forty. The states that do not cooperate are Kansas, Illinois, Louisiana, Vermont, Maine, Massachusetts, Connecticut and Rhode Island, but Louisiana is to come in during 1925. Since this bill was strongly opposed by the medical profession before it was passed by Congress and endorsed by President Harding, it is in order to inquire as to just what has been accomplished through the expenditure of this large amount of money. Perhaps it is well to quote exactly what the publicity department for the bureau has to say: the claim is made that this act has demonstrated its value since it has:

1. Stimulated state activities in maternal and infant hygiene.

2. Maintained the principle of local initiative and responsibility.

3. Improved the quality of the work being done for

mothers and babies by disseminating through a central source—the federal government—the results of scientific research and methods of work which have been found to operate successfully.

4. Increased state appropriations with the passage of the act. From the appropriation for the fiscal year 1922, fifteen states were able to accept only the \$5,000 unmatched funds. Six states were able to accept only the \$5,000 unmatched from the federal appropriation for the fiscal year 1923. All of the states cooperating under the act either have already accepted more than the \$5,000 unmatched allotment from the 1924 federal appropriation, or will be able to do so. Moreover, since the Maternity and Infancy Act became effective, thirty-three states accepting it have made definite increases in their own appropriations for the welfare of mothers and babies.

Actually, the first three items just quoted mean nothing. They represent no scientific evaluation of results, but merely the general statement that more attention is being paid to the matter without evidence of paternalism. How is it demonstrated that this act, which is essentially paternalistic, has "maintained the principle of local initiative and responsibility?" The fourth claim made means even less from the standpoint of benefit, since one of the chief charges against this act was that it forced the states to appropriate money in order that they might receive an equal share of federal funds. It is strange, then, that the claim should be made that one of the benefits of the act has been that the states have been forced to appropriate money which, by the very nature of things, they could hardly avoid appropriating. If the proponents of the Sheppard-Towner Act would justify the bill, they must submit exact figures indicating that the maternal and infant death rates have been appreciably lowered in those states which have cooperated with the federal government, and that the rates are much lower than those obtaining before this meddling legislation became effective, and lower also than those of the states which have not cooperated, and which may serve in this case as a control. Furthermore, recognition should be made of the tendency toward lowering of maternal and infant mortality rates in accordance with the general lowering of all mortality rates following increased application of our knowledge of sanitation and hygiene.—J. A. M. A.

THE FAMILY PHYSICIAN

The Chicago Tribune, Nov. 28, 1924, comments editorially on the Family Physician as follows:

In recent years of medical progress therapeutics has come to be a Cinderella. The fame won in scientific research, and most properly bestowed for scientific discoveries in the origin and nature of diseases, has inevitably thrown into the shade the practice of medicine, the art of the sick room. At the same time the growth of medical knowledge and the general tendency of the time has developed specialization to a high degree.

Both these phenomena in the medical world have been attended by disadvantages and thoughtful men

in the profession for some time have believed that they needed some offset or correction. There began to be too much of a flow of talent into special fields either of investigation or specialized practice, and were the tendency to increase we should presently have a great accumulation of knowledge and no one applying it to the actual relief of the suffering. Aside from the inherent limitations and dangers of specialization, the system is not workable except in the larger medical centers. In the country and small towns there is need, as always, for the general practitioner; and for that matter we believe there is need for him in cities as well; not only because of the high cost of the specialist system, but because the family physician is a very high product of experience and science, performing a service which no group of specialists can do. What is called the old fashioned family doctor requires a knowledge of the physical and mental material he deals with in advising and caring for his patients year in and year out, which the specialist system cannot have except through him. The specialist supplements his knowledge and together they represent a tremendous advance in efficiency. But we cannot get along without the general practitioner, and it is well that a great institution like the Northwestern University should give special attention to him.

RELEASE OF TRYPARSAMIDE

The Rockefeller Institute for Medical Research has announced the release of the drug known as Tryparsamide for use in the treatment of human and animal trypanosomiasis (African sleeping sickness and *mal de cadenas*) and selected cases of syphilis of the central nervous system. This action is based on results reported from clinical investigations which have been in progress for several years. The drug will be manufactured by the Powers-Weightman-Rosengarten Co. of Philadelphia, and will become available through the regular trade channels about January 1, 1925. In releasing the drug for the benefit of the public, the Rockefeller Institute desires it to be known that the Institute does not share in any way in profits that may be derived from the sale of the drug and that, with the cordial cooperation of the manufacturers, provision has been made for the maintenance of a schedule of prices on as low a basis as possible.

NATION'S NEED FOR THE FAMILY DOCTOR SHOWN

SURVEY AT N. U. HITS AT SPECIALIZATION

The Chicago Tribune, Nov. 26, 1924, makes the following comment:

America's need for the old time family doctor—the doctor who could treat anything from carache to appendicitis—has won the attention of Northwestern University.

Definite action was taken last night after President Walter Dill Scott had read a survey made on this need to the members of the university's board of trustees.

The survey, which substantiated what Chicago

medical leaders have been saying in a general way for several years, was made by two of the most noted men in the field of medicine in the country and two educators representing the Evanston institution.

THOSE WHO MADE SURVEY

The four were Dr. Charles H. Mayo one of the heads of the famous clinic at Rochester, Minn.; Dr. E. P. Lyon, dean of the school of medicine of the University of Minnesota; Prof. Raymond A. Kent, dean of the college of liberal arts, and Prof. Horace Secrist, teacher of economics at Northwestern.

Their survey was made in a series of conferences and after the study of a vast deal of data. It is believed to be the first exhaustive study of this particular medical need.

Summarized, the report of these four men holds that for the last two or three decades the trend in medical study has been toward specialization. Medical schools have turned out graduates learned in the diseases of the ear, nose, and throat; men who diagnose stomach ills and nothing else; doctors who devote their sole attention to the lungs or abdominal surgery.

Everybody who today wins an M. D. turns, it seems, toward some special form of medicine.

The result has been, these noted students of the problem say, that in many parts of the country there are plenty of specialists, but a dearth of all round doctors. This is especially marked, it is said, in rural districts where the need for the family doctor is most pronounced.

GO MILES TO FIND A DOCTOR

Cases have been reported where patients suffering from complex ailments have had to cover miles in making the rounds of the specialists before they could find a doctor who would administer to their needs.

So, as President Scott told the trustees last night, the time has come for medical schools to bring back the old fashioned, well rounded doctor. The trustees agreed. In making plans for McKinlock Memorial campus, which is to be built on Lake Shore drive by Northwestern, care will be taken that conditions are suitable for the teaching of this sort of medical man.

"This does not mean," President Scott said, "that one will not be able to take specialized training at our school. We will teach specialists. It means that we will also teach men to become doctors who can administer to the needs of a family, whether that need be a cure for carache or gallstones."

WE ARE TAKING TOO MUCH INTEREST IN THE PATIENT AS A "DISEASE" AND NOT ENOUGH AS A HUMAN BEING

THE PASSING OF THE OLD TIME DOCTOR

A man who is now a prominent practicing physician was speaking of an old doctor who had just died. "I remember," he said, "when I was an interne, coming in late one night to the hospital and I saw this doctor sitting on the steps. 'What is the matter?' I asked him. 'Well, that woman we operated today,' he said. 'I went home and went to bed, but I kept thinking

about her and I couldn't sleep, so I got up and dressed and came over. I thought it was better to be around here in case any complications should come up.'"

That to us seems to size up the type of physician that represents a period that may not have been as rich in scientific knowledge as the present but one that has been one of the greatest factors in making the medical profession not only respected but beloved.

Is it because we are taking too much interest in the patient as a "disease" and not enough as a human being that we are getting away from the personal touch that characterized the old time family doctor? To make a correct diagnosis may be gratifying. Too many physicians may think their duty is performed when they have solved a difficult case. The old time doctor stayed with his patients till the patient either died or got well. His patients had no opportunity to slip off to the chiropractor or Christian Scientist or some other attractive cult that would give him some hope, if not help.

And between the family physician of the old days who carried with him hope and good cheer, if not antitoxin and serum, and the modern specialist who is so busy with a crowded practice and writing papers and attending meetings that he is through when his diagnosis is correctly made, there was another type of man—the man who kept abreast of or even led the scientific work of his day but still carried with him affection and sympathy; who was not only respected but loved by all whom he strove to observe.—*Mo. State Med. Jour.*, Nov., 1924.

WHY MASSACHUSETTS BEAT CHILD CONTROL

NEW ENGLAND PARENTS RELIEVE THEY CAN MANAGE THEIR OWN CHILDREN

MARGARET C. ROBINSON IN THE DEARBORN INDEPENDENT MARCH 7

The fathers and mothers of the State of Massachusetts believe that they are better qualified to judge of what tasks their children under eighteen years of age are capable of performing in the home or on the home farm than the Children's Bureau at Washington, which defines the washing of dishes and the collecting of hens' eggs as "Child Labor."

On November 4, the men and women of Massachusetts were given an opportunity, under the People's Opinion Law, to express their opinion as to whether the Massachusetts legislature should ratify the so-called Child Labor Amendment. The result of this referendum to the people of a question touching not only their fundamental constitutional rights, but so intimate and personal a matter as the control and education of their own children, is of interest and value to the whole country.

At the beginning of the six weeks' campaign for and against the amendment, public opinion was favorable to the amendment, on the strength of its name alone. Any measure for the removal of harmful conditions of child labor wins immediate sympathy in Massachusetts, which has always been a pioneer

in good child labor legislation. But as the campaign of education went on, and the people began to realize that the amendment contained *an enormous new grant of power to Congress*, such as no government in the world exercises outside of Soviet Russia, and as the full significance of the text of the amendment ("Congress shall have power to limit, regulate and prohibit the labor of persons under 18") began to be understood, a tremendous change in public opinion set in, until on November 4 when the vote was taken 241,461 men and women voted for the amendment and 697,563 against it. This is the largest majority ever given on any question submitted to the people of Massachusetts.

What are the reasons for this tremendous defeat of the amendment in a progressive state like Massachusetts, which has always stood in the forefront of Child Labor Reform?

The advocates of the amendment, who are very bitter at such an overwhelming defeat at the hands of the people, say that the people were deceived.

Were the people deceived? There were certainly many barefaced attempts to deceive them. They were told, for instance, by advocates of the amendment, that little children of six and eight worked long hours in the southern mills, and that the South has no restrictive child labor legislation. The fact that every southern state forbids child labor in the mills up to the age of 14 was carefully concealed.

They were told that in Georgia little children could work all night in the mills. No child under 14 years and 6 months can work in the mills in Georgia after 7:00 p. m. or before 6:00 a. m.

They were told that 89,000 children under 15 are working in the mills in Georgia. The actual number is considerably under 300.

They were told that almost no states prohibit child labor at night. The fact is that almost all states do prohibit it.

They were told that no Socialist had anything to do with the drafting the amendment. The fact is that a woman who had much if not most to do with drafting the amendment—Mrs. Florence Kelley—is a member of the Socialist party, ex-president of the Inter-collegiate Socialist League, and lecturer at the Rand School of Socialism.

But—and here's the rub!—*these attempts to deceive the people were not successful*, and what is more, they acted as a boomerang. The people decided that there must be something radically wrong with a measure whose advocates felt it necessary to resort to such easily disproved statements as these, to make out any sort of a case. Hence they voted overwhelmingly against it. *The people were not deceived!*

Early in the campaign the advocates of the amendment attempted to secure the support of Massachusetts textile manufacturers by an appeal to their self-interest, in the form of an assurance that the amendment would eliminate hurtful competition with southern mills. Knowing that child labor in southern mills is today a negligible quantity, and that it is lower taxes, lower wages for men and women, due to lower

cost of living, nearness to the cotton fields and to soft coal mines, and so on, which makes the South a formidable competitor, the Massachusetts manufacturers refused to swallow the bait. It is evident that the advocates of the amendment had expected great results from this appeal, and their bitterness against the manufacturers is accordingly great.

In revenge they are circulating all over the country statements that Massachusetts was flooded with money by the manufacturers to defeat the amendment. Is this true?

To those who know the facts and who worked hard to help raise money needed for printing, speakers, advertising, and so on, this statement is ridiculous and worse. The money spent by the "Citizens' Committee" which conducted the campaign was about \$16,000, which came from 800 contributions, averaging \$20 each. The smallest contribution was 25 cents from a working woman. The largest individual contribution was \$200. The Massachusetts Public Interests League, an organization of public-spirited women whose platform is "to defend the Constitution of the United States, to oppose bureaucratic and socialist legislation, and to aid in furthering causes which are of importance to public welfare," raised several hundred dollars for the work of the Citizens' Committee.

Another charge made by the defeated party is that the amendment was defeated by Catholic influence.

Did the Roman Catholics defeat the amendment? Undoubtedly many Catholics did strongly oppose the amendment. Catholics will always oppose measures which threaten to undermine, weaken or destroy the institution of the family! But it is to be noted that at the same election on November 4, a Catholic candidate for Governor of Massachusetts was overwhelmingly defeated; that not only in the cities like Boston and Fall River, where there is a large Catholic population, was the amendment defeated, but in towns where there is not even a Catholic church; in fact, in every precinct in the state there was a majority against the amendment! Certainly no unprejudiced person can attribute such political power to any one organization in Massachusetts, even to the Catholic church. Another thing to be noted is that Georgia is as strongly opposed to this amendment as Massachusetts, and Georgia is the stronghold of the Ku Klux Klan, whose chief *raison d'être* is popularly supposed to be antagonism to the Catholic church. Some other explanation must be sought for the overwhelming victory in Massachusetts.

Bishop Lawrence, head of the Episcopal church in Massachusetts, Rev. A. Z. Conrad, one of the leading Congregational clergymen of the state, Rev. J. M. Shepler, presiding elder of the Methodist church, and other distinguished clergymen, stood with Cardinal O'Connell in opposing a measure which proposed to place 40,000,000 children and youths in the control of Congress.

The heads of our two greatest educational institutions, President Lowell of Harvard and President Stratton of the Institute of Technology, joined the Citizens' Committee for opposing the amendment.

Several of the ablest members of the Massachusetts Child Labor Committee, who have worked for years and with great success to improve child labor conditions in Massachusetts joined the opposition to this amendment, because they believed it to threaten serious evils to American youth.

Joseph Lee, president of the Playground and Recreation Committee, known throughout the United States for his long years of devoted service to the welfare of childhood, was a strong opponent of the amendment.

Who will say that these gentlemen were "deceived" concerning the amendment? And what are his intellectual qualifications for making the decision?

A feature of the campaign which has its amusing side is the worthlessness of "indorsements" of this amendment by organizations. Over and over again we were told of the many powerful organizations, especially women's organizations, which had indorsed it. But when election day came social workers, members of the churches, of the Y. W. C. A., teachers, and club women by the thousand voted against it in spite of the indorsements of these organizations. A former officer of the Massachusetts Federation of Women's Clubs says that not a single club woman of her acquaintance voted for the amendment!

Massachusetts has 966,000 women over 21 years of age. The fact that the combined vote of men and women for the amendment was only 241,461 shows what a small proportion of women favored it.

Why were the men and women of Massachusetts so strongly opposed to the amendment? For the same reason that the people of every other state will be against it if they inform themselves of its true nature Representative Isaac Foster, of Ohio, who sponsored the amendment in the House of Representatives (and who was in consequence defeated by his constituents at the primaries) admitted that *to submit this amendment to a convention elected by the people for the purpose would mean certain defeat for it!*

The advocates of the amendment will do their utmost to prevent the people of other states from being allowed to vote on the question. They prefer to have it left to state legislatures, trusting to their powerful and experienced lobbies to control the legislators.

One of the things which aroused the suspicions of the people of Massachusetts early in the campaign was the reiteration of the propagandists that the amendment *did not mean what it said*. They were vehement in declaring that it did not mean this, or it only meant that. Fortunately the language of the amendment is so very clear and simple that the voters (who are able to read, since we have a literacy test for citizenship in Massachusetts) felt competent to judge of the meaning of the words: "Congress shall have power to limit, regulate and prohibit the labor of persons under 18 years of age." They inferred that it meant what it said, and voted accordingly. In this judgment they are supported by a decision of the Supreme Court, which said:

"The framers of the Constitution must be understood to have employed words in their natural sense,

and to have intended what they have said; and in construing the extent of the powers which it creates, there is no other rule than to consider the language of the instrument which confers them." (*Gibbons vs. Ogden*, 9 Wheat, 188.)

Another decision of the Supreme Court is of importance in connection with this amendment: "The power to regulate implies in its nature full *power over the thing to be regulated*." This certainly gives food for thought when the thing to be regulated is the labor of persons under 18.

Congressman Ramseyer, of Iowa, who voted for the amendment, said:

"Mark right here, too, it does not say the 'employment' of persons under 18 years of age, but the 'labor' of persons under 18 years of age. * * * A boy who is sent by his father to milk cows labors. Under the proposed amendment Congress will have power to regulate the labor of a boy under the direction of his father as well as the employment of the same boy when he works for a neighbor or stranger. * * * Congress will have the power to 'limit, regulate and prohibit' the labor of girls under 18 years of age in the home and of boys under 18 years of age on the farms. Gentlemen admit that the effect of the proposed amendment is just as I state it."

The people of Massachusetts resented the attempts of the advocates of the amendment to deceive them as to the meaning and scope of the amendment.

They are not ready to line up with Russia in turning over the labor and education of the young to centralized control.

They believe that the states, which have done so much to improve child labor conditions, are more to be trusted for a continuation of the good work, than a Socialists Bureau at Washington, hundreds or thousands of miles away. That Federal dictation to the states is not needed is proved by the fact that since the second Federal Child Labor Law was declared unconstitutional twenty-two states have improved their laws for children.

The people of Massachusetts believe that the average parent is a saner judge of what labor his child under 18 is fitted to do in the home or on the home farm than the Children's Bureau at Washington, which lists as "Child Labor" such tasks as washing dishes, hunting eggs, making beds, caring for younger brothers and sisters, and so on.

In short, they believe it about time to defend their fundamental constitutional rights from further encroachments and to reserve for themselves such intimate and personal matters as the control and education of their own children.

SHALL THE RICH PAY MORE?

The question of whether the amount of a physician's fee should vary with the patient's financial condition never has been settled to the satisfaction of all. Physicians usually calculate their charges in accordance with one or more of the following methods (a) A fixed fee schedule of charges for all alike; (b) an optimum fee schedule on which all charges are made and from

which discounts are made to meet varying financial conditions of patients; (c) a fee schedule based upon what the physician considers his time worth. Patients who can't afford the schedule are not given discounts, but are treated free and the rich are charged extra.

All people have an interest in this problem from the standpoint of economic justice. Physicians have the additional responsibility of expressing its fairest solution in the ethics governing their conduct. Friendly arbitration or the law must furnish the final decision where controversy prevents more amicable adjustments. The vast majority of physicians calculate the value of their services from a more or less elastic personal fee schedule which changes from time to time, depending upon the usual conditions governing life. Nearly all physicians also discount their fees from 10 per cent to 100 per cent for a considerable percentage of their patients.

An inquiry upon this point submitted to a series of successful physicians recently brought the information that they collected what they considered their services worth from only about one-third of their patients; another third paid part fees, and about one-third of their services were rendered without compensation of any kind. The California Medical Association has taken an advanced stand upon the question of fees by passing a resolution endorsing the plan of charging fees in accordance with the patient's ability to pay, from nothing up to what each physician recognizes as his personal fee schedule. If this practice were more generally employed and more generally understood by the public, every physician's office would become a "medical center," or a "health center," or a "clinic" of the very best kind. Of course, there are a few physicians who have reached that far from enviable position in public opinion whereby they can—and a few of them no doubt do—conduct the practice of their profession upon a cash register basis. However, there are plenty of the other kind—and good ones, too. Comparatively few physicians actually charge wealthy patients extra high fees. However, some do, and the subject is often discussed both by physicians and the public in general.

An editorial in a recent number of *The Lawyers' Magazine* reviews the question of "Making the Rich Pay More" in an authoritative and interesting manner. The editorial states

"An English judge is reported, not long since, to have upheld the right of a physician to charge a wealthy patient more than he would ask a poor man for similar services.

"There seems to be a conflict in the authorities, in this country, as to whether it is proper to prove the value of the estate of a person for whom medical services were rendered, or the financial condition of the person receiving such services, in estimating their value, in the absence of an express contract. Some decisions favor the admission of such evidence. *Haley's Succession*, 50 La. Ann. 840, 24 So. 285; *Czarnowski v. Zeyer*, 35 La. Ann. 796; *Schoenberg v. Rose*, 145 N. Y. Supp. 831. In other jurisdictions, however, such evidence may not be considered. *Robinson v. Campbell*,

47 Iowa, 625; *swift v. Kelly*, Tex. Civ. App., 133 S. W. 901.

"In determining the value of professional services rendered, testimony as to the value of a deceased patient's estate has been held inadmissible in the absence of a recognized usage obtaining to graduate professional charges with reference to the financial condition of the person for whom such services are rendered, which had been so long established and so universally acted upon as to have ripened into a custom. *Morrisett v. Wood*, 123 Ala. 384, 82 Am. St. Rep. 127, 26 So. 307.

"On the question of the value of services rendered by a physician, it is stated by the court in *Lange v. Kearney*, 21 N. Y. S. R. 262, 4 N. Y. Supp. 14, affirmed in 127 N. Y. 676, 28 N. E. 255: 'There is also evidence tending to establish a custom or rule of guidance as to charges of physicians for services rendered, and which makes the amount dependent upon the means of the patient, his financial ability, or condition; but this is a benevolent practice which does not affect the abstract question of value, or impose any legal obligation to adopt it, and cannot be said to be universal on the evidence. Indeed, there does not seem to exist any standard by which, in the application of the rule, the amount to be paid can be ascertained.'

"Whatever may be the true principle governing this matter in contracts, the court, in one case at least, is of the opinion that the financial condition of a patient cannot be considered, where there is no contract, and recovery is sustained on a legal fiction. *Cotnam v. Wisdom*, 83 Ark. 601, 119 Am. St. Rep. 57, 104 S. W. 164, 13 Ann. Cas. 25, 12 L. R. A. (N. S.) 1090."

The problem of physicians' fees is now much in the public eye everywhere as a result of the recent controversy between the Ford hospital authorities, on the one hand, and those of the Medical Society of Detroit Academy of Medicine, on the other hand. The Ford hospital appears to be conducted upon somewhat the same basis that a factory is conducted. Costs of services are accurately figured and charges are made to all alike upon that basis, regardless of the patient's ability to pay. This, in so far as his private hospital charges are concerned, while much criticized upon ethical grounds, is nevertheless conceded to be Ford's business.

The trouble seems to be that, in order to reach machine perfection, a definite price was fixed for each medical and surgical service, and there was to be no more flexibility in that charge than in the charge for the rent of a room or the price of an automobile. Doctors not on the salaried hospital payroll objected—and properly so—to the principle involved. Nevertheless, if we understand the situation, Ford is doing precisely what insurance companies (life and accident); governments (national, state, and local); hospital associations; life extension institutes; fraternal organizations, with sick benefits; clinics of the pay species, and many, many others in the medical field are doing.

The controversy is as old as man, and it is no nearer a solution now than it was a generation ago. The

fundamentals are clear, but are usually overlooked. It is primarily a question as to whether the promotion of health and the prevention and treatment of disease is to be carried on as a private arrangement between agent and consumer or whether it is to become a great organized public utility where everyone is served like they are by a transportation system, for example: Buy your ticket or secure a free pass and ride on the train that is available and accept the conductor you happen to draw.

It is interesting in this connection to inform our members that there is a movement on foot to try to have the next California legislature declare health and medical service to be a public utility and thus place its supervision under control of the state. What are you going to do about it?—California & Western Medicine.

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Alfred E. Staps.....	Basco	R. R. Trueblood.....	Lawrenceville
Ray Sexton	Streator	Royal Tharp.....	East St. Louis
C. D. Snively.....	Ipava	Louis N. Tate.....	Galesburg
W. E. Shallenberger.....	Canton	L. C. Tate.....	Springfield
W. G. Sachse.....	Morris	L. C. Taylor.....	Springfield
Oliver B. Simon.....	Batavia	Franklin Turner	Arthur
J. B. Schreiter.....	Savanna	F. M. Thurman.....	Pearl
W. E. Shastid.....	Pittsfield	C. E. Tucker.....	Metropolis
John Huston Spyker.....	Decatur	Tazewell County Medical Society.....	Pekin
Wm. C. Schiele.....	Galena	M. Van Cleve.....	Macomb
H. L. Shafer.....	Cornell	E. P. Van Arsdale.....	Beardstown
J. N. Shaff.....	Alton	H. M. Voris.....	East St. Louis
L. O. Sale.....	Fisher	C. B. Voigt.....	Mattoon
L. L. Steiner.....	Danville	C. E. Wilkinson.....	Danville
P. H. Stoops.....	Ipava	C. E. Williams.....	Danville
D. G. Smith.....	Freeport	R. R. Whiteside.....	Moline
A. M. Swanson.....	Rockford	R. W. Wahlberg.....	Moline
Karl Snyder	Freeport	O. D. Willstead.....	Chatsworth
Wm. Schoennesshoefer	Streator	J. W. Walton.....	Homer
Guy Sloan	Bloomington	H. M. Wolfe.....	Taylorville
E. P. Sloan.....	Bloomington	A. A. Wilson.....	Davis
O. O. Stanley.....	Decatur	W. C. Wood.....	Decatur
E. C. Spitze.....	East St. Louis	Rodney A. Wright.....	De Kalb
C. A. Stokes.....	Edinburgh	H. W. Wellmerling	Bloomington
Wm. V. Secker.....	Champaign	A. R. Whitefort.....	St. Elmo
N. Starr	Charleston	Wm. L. Wilson.....	Hinsdale
R. S. Sabine.....	Murphysboro	N. A. Wright.....	Manito
P. S. Schoels.....	Canton	F. W. Werner.....	Joliet
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H. G. G. Schmidt.....	Elgin	Geo. Woodruff	Joliet
W. N. Sievers.....	White Heath	B. G. Wilcox.....	Joliet
K. D. Sanders.....	Jonesboro	Wm. Welch	Joliet
Chas. H. S. Starkel.....	Belleville	F. J. Welch.....	Bloomington
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Harold Swanberg	Quincy	C. F. Wilhelmmy.....	East St. Louis
H. E. Stephen.....	Joliet	Jas. E. Woelfle.....	Cairo
A. Schreffler	Joliet	L. E. Wedel.....	East St. Louis
A. G. Sellards.....	Joliet	F. C. Winters.....	Monmouth
O. W. Simpson.....	Peoria	M. R. Williamson.....	Alton
Lena Stewart	Joliet	J. S. Wead.....	Wyoming
E. R. Steen.....	Joliet	Alma T. Wead.....	Wyoming
J. H. Siegel.....	Collinsville	Edward H. Weld and Anna Weld.....	Rockford
A. M. Shaw.....	Adrian	C. Martin Wood.....	Decatur
Wilbur F. Spencer.....	Geneseo	L. G. Wisner.....	Herscher
Walter Stevenson	Quincy	W. W. Williams.....	Quincy
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J. E. Walton.....	Alton
J. F. Wilson.....	Versailles
Perry H. Wessel.....	Moline
Peter H. Wessel.....	Moline
T. H. Wagner.....	Joliet
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G. T. Weber.....	Olney
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J. C. Weber.....	Olney
Winnebago County Medical Society.....	Rockford
R. L. Watson.....	Joliet
Carl H. Wilkinson.....	De Kalb
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Whiteside County Medical Society.....	Sterling
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Note—Will County Medical Society contributed \$350.00 and Rock Island County Medical Society contributed \$100.00 to the fund. Kankakee County, Madison County, Winnebago County, Whiteside County, Tazewell County and the Tri-City Medical Society are the only medical organizations that have contributed.

This lay educational campaign cannot be prosecuted without funds; it must be supported by popular subscription. Every doctor should subscribe to this worthy cause. Serious disease diverted from the incompetent will result in the saving of thousands of lives and will prevent much permanent invalidism.

The campaign is achieving two great objectives: A gradual but ultimate restoration of the medical profession to its merited place in the public sympathy and confidence and the inestimable benefits to humanity through the consequent prevention of disease and the preservation of life.

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Please sign and mail to the Illinois Medical Society.
To the Officers of the Illinois State Medical Society
and Members of the Council:

"I am in accord with the lay educational campaign unanimously adopted by the House of Dele-

gates of the State Society and the plan recommended by the Council of the Society, and as evidence of my desire to co-operate with the Officers of the Council and of the State Society, I hereby enclose my check for \$..... to aid in defraying the expenses thereof:

MAKE CHECKS PAYABLE TO THE ILLINOIS
STATE MEDICAL SOCIETY.

Name M. D.
Street
City..... County.....

Sign the above pledge card, make out a check payable to the Illinois State Medical Society and mail both in an envelope addressed as follows:

From

ILLINOIS STATE MEDICAL SOCIETY.

c/o Cashier, Sheridan Trust and Savings Bank
4738 Broadway, Chicago, Ill.

Lay Educational Committee.
25 E. Washington St., Chicago, Ill.

CHICAGO MEDICAL SOCIETY SUBSCRIBERS
TO THE LAY EDUCATIONAL FUND OF
THE ILLINOIS STATE MEDICAL
SOCIETY.

The list has been carefully checked to make sure of accuracy. If an error has crept in, kindly note same and forward to the Committee.

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T. Z. Xelowski
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O. Zelezny
Lucius H. Zeuch

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Society.

Name M. D.

Street

City..... County.....

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From

.....
.....
.....

ILLINOIS STATE MEDICAL SOCIETY

c/o Cashier, Sheridan Trust and Savings Bank,
4738 Broadway, Chicago, Ill.

Lay Educational Committee,
25 E. Washington St., Chicago, Ill.

HE NEVER RETURNED

Nervous Woman (to persistent beggar)—If I give you a piece of pudding you'll never return, will you?

Beggar—Well, lady, you know your pudding better than I do.—*Chicago Tribune.*

WAKEFUL FEATURE

Mother—"Is daddy asleep?"

Betty—"Yes, mother—all except his nose."—*London Humorist.*

Correspondence

BILLS IN THE ILLINOIS LEGISLATURE THAT MEAN MUCH TO ILLINOIS PHYSICIANS

Chicago, March 2, 1925.

TO THE EDITOR: Your attention is invited to the following bills now pending in the Legislature:

H. B. No. 82—Woman's 8-Hour Bill.

H. B. No. 90—One Day's Rest in Seven Bill.

H. B. No. 82 prohibits the employment of women for more than 8 hours any one day. Graduate nurses only are exempted from its provisions so far as the bill applies to hospitals. The bill also contains a provision permitting women to work an additional 2 hours in any day, in emergencies, providing such emergency employment to be immediately reported to the State Department of Labor whose lay inspectors will subsequently investigate the merits of such emergency employment.

H. B. No. 90 provides for one full day's rest in seven for all employes (male and female) in any occupation and makes no exception for hospitals.

Hospitals must operate 24 hours a day and 7 days a week. Their patients require constant attention during every hour of the day. Emergency and accident cases are brought in at all hours and must have attention immediately.

Both these bills will seriously interfere with the care of the sick and injured. Few if any hospitals work their employes more than 8 hours a day and none over 10. Hospital employes, including nurses both pupil and graduate, are notoriously healthy, are under constant competent medical supervision and are generally well cared for and contented. The exemption of graduate nurses from the provisions of this law is of no benefit to the hospitals. Only a small percentage of the graduate nurses in the state hold institutional positions and their duties are largely supervisory. Every other employe in the hospital has an essential part in the care of the sick patient.

The imposition of any such law as this upon the already overburdened hospitals is unwarranted and unnecessary.

The membership of the Illinois State Medical

Society should also be interested in both these bills.

Your co-operation is solicited to the extent of giving this matter as much publicity as possible and in calling upon your membership to communicate immediately and repeatedly with the members of the Legislature (both Senators and Representatives) in their respective districts and protest against the passage of these bills until they are finally defeated.

E. T. OLSEN, M. D., Secretary,
Illinois Hospital Association.

AUTO BILLS IN ILLINOIS LEGISLATURE THAT SERIOUSLY AFFECT PHYSICIANS

March 2, 1925.

TO THE EDITOR: Your attention is invited to the following bills now pending in the Legislature:

H. B. (?). Providing for a tax of 2 cents per gallon on gasoline.

H. B. 103. Introduced by Representative Poffers. Provides that every automobile owner applying for license must furnish indemnity bond in the sum of \$5,000. Must also show financial ability to pay any damage incurred.

Inasmuch as these bills will affect every member of the medical profession in the State I take the liberty of calling your attention to them in order that you may give the matter such attention as you deem necessary to secure active opposition to their passage.

E. T. OLSEN, M. D., Secretary,
Illinois Hospital Association.

THREE GOOD REASONS

A doctor who had taken up as his specialty the treatment of skin diseases, was asked by a friend how he happened to select that branch of medicine.

"There were three perfectly good reasons," replied the physician. "My patients never get me out of bed at night; they never die; and they never get well."

POOR FINANCE

A noted financier was taken seriously ill at 90 years old and felt that his end was near.

"Nonsense," said the doctor, "the Lord isn't going to take you until you've passed the 100 mark."

"No, my friend," said the aged banker, "that wouldn't be good finance. Why should the Lord wait until I reach par when He can pick me up at 90?"

—*Business Magazine.*

Original Articles

ADVANCES IN SURGERY THROUGH PHYSICOCHEMIC STUDIES OF THE BLOOD*

WILLIAM J. MAYO, M. D.,
ROCHESTER, MINN.

Knowledge is what we learn from others; wisdom is what we know ourselves. It is the mentality of the surgeon, rather than his technical ability, which is of the greatest importance. The good surgeon is not necessarily a good operator. Knowing when not to operate is as important as knowing when or how to operate.

We say that a certain surgeon has good surgical judgment, meaning that he more or less correctly estimates the vital processes of the patient in relation to his resistance, and visualizes the future course of his illness with a view to initiating such changes as will reduce the risk of a necessary surgical operation, and enhance the prospects of cure. Formerly, with the aid of a few instruments and a small number of chemical tests, the experienced surgeon arrived at a fairly accurate diagnosis and estimated surgical risks in the more advanced stages of disease. Today, the surgeon has at his disposal, through the aid of the internist and the laboratory worker using scientific methods, a vast amount of correct information in the early, as well as in the late, stages of disease. Formerly, estimation of the competency of the kidneys was made by a few simple examinations of the urine, and of the function of the liver by observations as to jaundice. At present, through biophysics and biochemistry, accurate estimations of renal and hepatic functions can be made.

The early masters of clinical medicine, however, did a great work. One must pay homage to men like Richard Bright and Thomas Addison. Bright, in 1828, with a tablespoon, a candle, and a few simple reagents, gave a graphic picture of acute nephritis with its characteristic edema, occurring, for instance, as a sequela of scarlet fever, and ten years later gave a classical description of the cardiorenal manifestations of the contracted granular kidney. Addison, in 1849 described the disease of the suprarenals, which has been given his name, and ascribed the accompanying circulatory asthenia and bronzed

skin to failure of the suprarenals to function. In 1855, in a few short pages, described the syndrome of pernicious anemia with a acidity which has never been excelled. Bright and Addison were masters in the early days, but they understood disease only in advanced and terminal conditions. Today, masters are working with accurate scientific methods, which enable them to make enormous strides in their ability to understand and treat disease in the early, curable stages. As Rowntree says, the old adage, "Methods are not superior to masters," in the light of the knowledge of the present day, should be paraphrased to "Masters cannot ignore methods."

Sir William Bayliss said that there was no line of demarcation between physics and chemistry. In other words, it is only under certain physical conditions that those alterations in the atomic constitution of molecular bodies, which we speak of as biochemistry, take place. In the days of the old masters, only microscopes of very inferior power were available. With the high-powered microscopes of today, one can see particles as minute as $1/10$ micron or $1/250,000$ inch in diameter. This advance in microscopy has made possible a fine analysis of the cellular elements of the blood. It has definitely fixed the red blood cell, derived from the bone marrow, as the oxygen carrier through its hemoglobin content. If the body is deprived of oxygen, death occurs in from seven to ten minutes. Since 47 per cent of the earth, air, and water, is composed of oxygen, it is surprising that there is no storage facility in the body, either for oxygen or for substances which, under stress, would produce it. Until recently it was believed that the red cells were completely renewed every seven days, but it is now known, through the work of Ashby of the Mayo Foundation, that these cells may live for many weeks. The red cells function, but have no nucleus and, therefore, have no power of growth. Blood transfusion clearly demonstrates the value of the introduction of oxygen carriers as a temporary aid to the rehabilitation of an anemic patient.

The white cells, which are nucleated, are derived from the reticulo-endothelial system, and have been shown to be directly connected with defense and repair. Quantitative and qualitative methods of study, based on cell morphology, give extraordinary knowledge of the power of de-

*Read before Inter-State Post Graduate Assembly of America, Milwaukee, Wis., October 30, 1924.

fense of the white cell in the infections, and the decision to operate in an acute condition may finally rest on a rising white cell count. Without the white cell, there would be no repair of injuries. On the other hand, the diagnosis of leukemia, in the acute form, may depend on the changed morphology of the white cells, instead of on a high leukocyte count, as in the chronic forms.

The relation of the blood platelets, which are derived from the megakaryocytes of the bone marrow, to blood clotting and the purpuras, has become evident, as well as the agency of the spleen in the prolonged destruction of blood platelets, which may cause a drop from a normal count of from 225,000 to 300,000 or more, to 40,000 or less, causing chronic purpura in which splenectomy has given striking curative results.

We begin to look on the spleen in a new light, as a course filter of the cellular elements of the blood which have outlived their usefulness, and as a limited source of white cells. The spleen is a destroyer of worn-out red cells, and if it is enlarged, it may, by an unnecessary destructive activity, bring about anemia. In cases of pernicious anemia, the spleen perhaps functions normally as an executioner of red cells of reduced value, which, however, are capable of maintaining life, and are the best the bone marrow can produce.

Krogh has shown that the walls of the vascular capillaries contain contractile cells, derived from the nonstriated muscle, which are to a large extent self-controlled. Under the circulatory pressure, the endothelial cells of the capillaries permit oxygen and molecular substances, such as the crystalloids and amino-acids, to pass by filtration, osmosis, diffusion, and other forces through the stomas in the wall of the vessel, to serve vital purposes; nutrition, energy, and heat. When certain toxic poisons, for example, histamin, paralyze the nonstriated muscle fibers, causing the stomas in the wall of the capillary to open more widely, large bodies, such as the colloids of the blood plasma, pass from the capillaries into the tissues, causing the state known as shock.

We may, therefore, regard the vascular system as a means of transporting cellular elements in a liquid medium, which we call the blood plasma. Until recently, our knowledge ended there, but

today, through physicochemic studies, we are gaining an enormous knowledge of this problem. We see the blood plasma carrying nutrition to all parts of the body, effete substances which are to be eliminated to the emunctories, and chemical substances, spoken of as internal secretions, which coördinate the fundamental vegetative functions. These substances are too minute to be seen with a microscope. The colloid field includes particles from $1/10$ micron or $1/250,000$ inch in diameter to approximately $1/1,000$ micron or $1/25,000,000$ inch in diameter. Knowledge of the colloids comes through the fact that the colloid particles are larger than a ray of light, and that with the ultramicroscope they can be seen to reflect or diffract the ray of light. The ultramicroscope determines the presence of colloid bodies, but gives no idea of their size, shape, color, or other significant details. Particles less than $1/1,000$ micron in diameter lie in the molecular and atomic field, in which chemical changes take place.

According to Bohr, the atom is composed of a positive nucleus, or proton, surrounded by a negative electron or electrons. The simplest atom is that of hydrogen, composed of one proton and one electron, the latter being in rapid motion around the proton. Henry Moseley, a talented young Englishman who was killed in the Gallipoli campaign at the early age of twenty-eight, analyzed the atom by the refraction of the x-ray, an electromagnetic vibration of only $1/100,000,000$ inch in length, smaller than the atom. He demonstrated that there are ninety-two possible elements between hydrogen, the lightest, and uranium, the heaviest, and that between each two elements in the progression in atomic weight, there is the weight of one atom of hydrogen; that is, an atom of oxygen has sixteen protons and sixteen electrons, an atom of radium eighty-eight protons and eighty-eight electrons, and an atom of uranium, ninety-two of each. Gold has seventy-nine electrons, and mercury eighty. Miethe has succeeded in removing one electron from mercury and obtaining gold. As a result of Moseley's work, Rutherford, Thomson, and others have been able to fill in all but four of the elements lying between hydrogen and uranium. Many elements are not stable, or contain more than the necessary number of protons or electrons, and these superfluous, easily loosened, or free, electrical units are

called ions, and are responsible for the atomic changes which we speak of as chemistry.

It is in the atomic and molecular field that oxidation takes place and the constitution of the molecule is altered. Crystalloids, of which glucose is a good example, lie in the molecular field, as do the amino-acids, which are the final results of protein metabolism. We now know that these ultimate products are formed in the liver, for, as Mann has shown by animal experimentation, if the liver is removed, sugar and urea in great part disappear from the blood.

It may seem that this discussion is ultrascientific and impractical, but on the contrary, it is most practical. Today, precise examinations of the blood, for reactions which concern the colloids and molecular and atomic substances, have been raised to the dignity of sound methods of securing information of vital phenomena.

Let us take as an example, examinations of the blood in relation to the kidney. The function of the kidney may be briefly defined as the filtration of noncolloid constituents of the blood plasma through the capsule, and the resorption of threshold bodies in solution through the tubule cells. The kidney is, therefore, chiefly a filter whose function is to eliminate certain metabolites, such as urea, chlorides, and creatinin, from the blood. Urea is listed by Cushny as a nonthreshold body; it is one of the smallest of the molecules, and is not hydrated; that is, it does not change in size by absorbing water. We know that the urea molecule must be roughly about the size of the molecule of the dye, phenolsulphonaphthalein, which, Rowntree has shown by intravenous injections, would be eliminated from the blood through the kidneys about as readily as urea would be eliminated. The Rowntree and Geraghty phenolsulphonaphthalein test is an accurate guide to the functional capacity of the kidney to eliminate urea. Retention of chlorids in the body, through disturbance of renal function, results in the edemas. Creatinin is another waste material, derived from the tissue catabolism excreted by the kidneys. Estimation of these substances in the blood affords the most reliable prognostic index to renal function.

Finally, the kidney eliminates excess water in order to maintain a proper physical state of fluidity, that the molecular constituents of the blood plasma, glucose, amino-acids, and so forth,

may be maintained in the condition necessary to permit chemical exchanges. Eighty per cent of the body is composed of water. Colloid bodies in so-called solution can be seen only by refraction with the ultramicroscope and are held in suspension in fluids, while molecular and atomic particles form true solutions which, according to Arrhenius, may undergo electrolytic dissociation into positive and negative parts which are ionic.

Through studies of the blood has come the remarkable improvement in the results of operations on patients with reduced renal function. Such improvement could not be estimated by the old method of examining the urine. When the blood urea rises above 125, operation becomes most serious, unless it concerns obstruction to elimination by the kidneys. Even when the blood urea is above 300, the well prepared patient may recover from operation, provided the urinary obstruction can be relieved, as in certain conditions of the prostate. When the blood creatinin rises above 5, a serious barrier to excretion is present, and the patient is in danger; when it rises above 10, the patient will probably die unless the barrier is removed. The percentage rise and fall of the blood chlorids must be watched with care, but is not so striking as in the case of urea. In chloride retention, edema may occur. In high intestinal obstruction, the chlorids of the blood may fall markedly, and this is frequently associated with an alkalosis and its clinical manifestations.

If the renal function, in relation to elimination of urea, chlorids, and creatinin, is so reduced that the urine cannot concentrate normally, a large intake of water is necessary. That is, if the urine normally is excreted in concentration of 1,020, and the kidneys are able to concentrate only to 0,005, the patient must take extra water to insure proper elimination through the kidneys. If the renal incompetency is due to the stage of cardiac insufficiency, the patient may not bear the amount of water necessary for elimination, and a secondary edema may develop. Measures must be taken to obviate this cardiorenal complication. Under intelligent management, the condition of a patient with most serious toxemia from renal insufficiency may be improved, and a successful operation performed.

Note what may be done for the patient with the information derived from studies of the blood. Rehabilitation of the blood in cases of renal incompetency consists in giving fluid in

the form of sodium chloride and glucose solution rectally, subcutaneously, or, if the condition is acute, intravenously. Glucose maintains heat and energy in the body and reduces the metabolites in the blood by preventing destruction of tissue. If the blood chlorids are high, water without sodium chlorid is indicated, but as a rule they are low and large quantities of hypertonic sodium chloride solution are given intravenously.

In high intestinal obstruction, the chlorids of the blood go down while the urea and creatinin go up. The problem is to restore the body fluids with water, which also aids elimination of urea. To restore the chlorids, chlorid of sodium is given, not bicarbonate of soda, in the water, since alkalosis exists. Glucose is added to maintain oxidation in the body for heat and energy, and to check destruction of body tissue. This treatment will reduce the toxemia. High jejunostomy in cases of definite obstruction may become necessary, thus preventing toxic intestinal contents, through antiperistalsis, from reaching the upper jejunum and duodenum, where absorption takes place, causing profuse vomiting and dehydration. Many lives may thus be saved, and curative operations for the relief of the primary condition made possible at a later date, as shown by Balfour and McVicar.

Owing to precise methods of estimating blood sugar, we are today able to operate on the diabetic patient properly rehabilitated, for general surgical conditions, with a mortality not exceeding that of the average, as shown by Wilder. The surgical mortality in cases of jaundice in which patients have been properly prepared, has been reduced from above 10 per cent to less than 3 per cent, as shown by Walters. Last, but by no means least, by the use of the Rowntree-Rosenthal test with the intravenous injection of the dye, tetrachlorophthalein, we are able accurately to gauge the functional capacity of the liver, thereby avoiding many deaths from toxemia due to failure of hepatic function. Such deaths previously were charged to the lungs, the kidneys, the brain, and the heart, when, as a matter of fact, these organs were not the cause of death, but merely the executioners.

I have been privileged to see my colleagues, the internists, and laboratory workers, evolve scientific methods for examining the blood, and apply them in cases in which formerly operation,

unaided, would have meant death, a rehabilitation resulting that indicates a most striking advance in modern surgery.

STANDARDIZATION OF EQUIPMENT FOR THE TREATMENT OF FRACTURES

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To-day we are splendidly equipped for the treatment of fractures. We are unlimited in the use of the X-ray, whereas only a few years ago many patients could not have this privilege. To-day the facilities for transportation are such, that almost under any conditions, the patient can have the benefit of X-ray examination. Our mechanicians and craftsmen are so skilled in making appliances that there is scarcely any conceivable type of fracture that cannot be splinted. In some of our hospitals we have highly specialized services where fractures can be given intensive study, and our numerous text-books are good upon this subject so that the best methods can be made available in the hands of every practitioner. Notwithstanding all of our advantages, however, there is great confusion regarding the selection of methods and appliances and often it is very apparent that the simpler teachings in the treatment of fractures are ignored.

Transportation of Fracture Cases. In the transportation of fracture cases whether the scene of action is nearby or whether it involves a long journey by train, we see most flagrant treatment, or lack of treatment, in the handling of these cases. It is often refreshing to regale ourselves with the very simplest rules of treatment in order to bring us to our senses.

The great outstanding principle in the treatment and transportation of all fracture cases is to prevent and treat the patient for shock. In shock the patient is cold, and if he is raced across miles of city pavement in a cold ambulance without hot water bottles and warm blankets you have only added to his traumatism. If the fractured member is not immediately splinted he has had the additional shock caused by the broken ends of the bones continually stabbing him in the soft, unprotected parts about the fracture. The time-

*Read before Section on Surgery, Illinois State Medical Society, Springfield, May 7, 1924.

honored principle, that the extremity above and below the fractured member should always be immobilized, is apparently forgotten, because cases are received at the hospitals with the leg splinted and the foot dangling. In the City Hospital at the present time, not the least attempt is being made on the part of the ambulance attendant to immobilize the limb or alleviate the suffering of the ing for transportation. We are attempting to patient. We are no further advanced than in the days preceding the Civil War. If the victim is fortunate enough to be injured in a plant with a first aid station, he may receive adequate splint-correct this evil and the responsibility does not rest with the ambulance driver, but is upon the shoulders of the medical profession which does not insist in a two-fisted manner that first aid be properly administered.

The Lidston splint with permanent foot-piece is undoubtedly the second best splint for the transportation and primary treatment of fractures of the femur and upper tibia, but it does not give extension. For this reason, the Thomas leg splint is the "splint of splints" for the transportation of fractures of the lower extremity. These splints, in a comparatively small assortment of sizes, are easily fitted and require no mechanical ability in their application. With a clove hitch about the foot, with the shoe on, and no attempt to remove the trousers or clothing, fixation and extension can be maintained from the time the primary treatment is given until the patient is in permanent extension in the hospital. Therefore, unless plaster of Paris is used in the treatment of the fracture of the femur, there is never any occasion to use any splint except a Thomas ring leg splint or the original Hodgen splint.

Incomplete Immobilization. The pillow splint is a good splint for a Pott's fracture if it is so applied that the foot is immobilized. Theoretically, it is ideal but when we go to analyze this method of early splinting, we see there are several defects. First, the thigh above the fractured tibia should be immobilized in compliance with the law stated above that all parts above and below the fracture should be immobilized. This the pillow splint does not do and again the foot must be immobilized. The pillow splint does not allow any early attempt at a reduction of a fracture because it permits too much freedom of mo-

tion. Then, too, it can be made too tight, is cumbersome to handle for X-raying.

In the St. Louis City Hospital we have adopted the policy in all cases of fracture of the leg to roll out a plaster slab bent up to include the foot and extending one-half way up the thigh. This is built up to one-half inch in thickness, extends around the thigh and is just wide enough to extend one-half way around the leg. An early attempt is being made to reduce the fracture and apply this type of splint well packed anteriorly with cotton. After the swelling has disappeared, if the leg is in good position, an anterior plaster slab can be applied and the patient is able to be up and about.

*Tight Bandages and Splints.*¹ A discussion of the treatment of fractures is incomplete without mentioning the dangers from tight splints, plaster of Paris and simple bandages. The

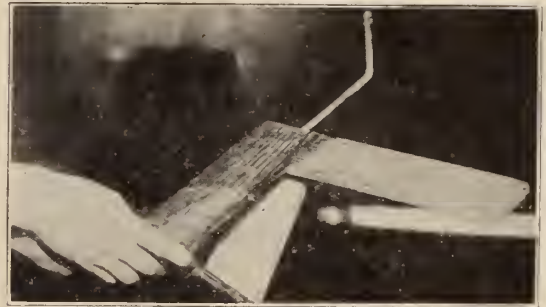


Fig. 1. Wooden triangular frame to be used in fracture of the humerus; note rest for forearm and right angle iron bar for extension. (Splint designed by Doctors Steckbauer and Nealy, Saint Louis City Hospital Resident Staff.)

writer has personally seen three cases of gangrene of fractured extremities where the circulation had not been injured but where tight plaster of Paris and bandages had been used. After the splints have been applied, if there is swelling and blueness of the extremities beyond the fracture, accompanied by severe throbbing pain, this should be a positive indication that the splint or other constriction should be removed until the pain is relieved. Volkmann's ischemic paralysis still occurs too frequently and is invariably the result of tight bandages.

*The Triangular Arm Splint.*² The old-fashioned triangular wooden frame arm splint has

1. Prevention of Deformities in Acute Surgical Lesions in Children. Jour. Mo. State Med. Assoc., August, 1923, Vol. XX, p. 271.

2. Scudder, Treatment of Fractures. Chapter on Fractures of the Arm.

in some localities apparently dropped out of use. This is unfortunate because it is a good splint and the patient can be made very comfortable in it. It is quickly made and the application is easy. Any position from a complete right angle, to one where the arm is just free of the body, can be maintained. It is not practical in any sense for a compound fracture because it does not give free access where there is infection and liability of abscess formation, but for a simple fracture in any part of the humerus—excepting the supra-condylar fracture—this splint will answer most purposes.

In the Fracture Service at the St. Louis City Hospital, the following procedure is followed in fracture of the humerus. An X-ray picture is taken and if there is an angulation, the splint is so constructed that the arm is maintained in permanent position at the angle assumed by the proximal fragment as shown in the X-ray. At the elbow the splint is so constructed that the support carrying the forearm is at a right angle to the arm support, thus giving comfort and ease of position. It is important that the splint be well padded with cotton particularly at the elbow to allow for the pressure of the internal condyle. In fixing the splint to the body, it is important to have a pad of felt next to the chest wall and a number of layers of plaster of Paris over this and surrounding the body before the splint itself is applied; this gives the arm support against which the splint rests rather than to have it rest directly against the side of the body. This one point speaks for the comfort of the patient. The splint is then secured to the body with plaster of Paris which also includes the arm. Of course this apparatus can be applied with plaster alone, but unless one is quite experienced in the use of plaster, this is a hard appliance to make and it is easily broken if not properly reinforced. Again, by a simple extension out beyond the end of the splint and allowing the plaster to run only to the elbow, strips of adhesive can be applied and extension maintained while the splint is in position. This is rarely necessary as there is very little over-riding in fractures of the humerus.

Occasionally after the triangular frame is made the patient is taken to the X-ray room and under direct fluoroscopic observation the triangle is applied to be certain that the best position has

been secured. As soon as the plaster of Paris is dry, X-ray pictures are taken in two directions. This apparatus can usually be applied at the end of the 4th or 5th day following the fracture, as the swelling is generally about reduced by that time. With this splint, the patient is able to be out of bed by the end of the first week. We have not been able to convince our patients with fractures of the humerus that they are bed patients, and most of them object very seriously to any form of the Thomas arm splint that requires them to stay in bed.

In fractures of the lower third of the humerus,



Fig. 2. Triangular arm splint in position, fixed to the body with plaster-Paris. Note extension and Spanish windlass made with twisted rope and tongue depressor.

we prefer a firm immobilization. We are inclined to believe that a large number of cases of non-union of this class are due to incomplete immobilization. In the last three years we have not had a single case of non-union nor have we had a single fracture of the humerus that could not be treated in this splint. Remembering that this splint is not to be used for supracondylar fractures and is not always successful in certain fractures of the surgical neck of the humerus.

Fractures of the Upper Half of the Radius and Ulna. In this particular type of fractures, one of the most important points to watch and the most frequent mistake that is made is in neglect-

ing complete supination. After pronation once becomes fixed it is almost impossible to regain supination. The simple coaptation splints will probably give this position but they will not assure it. It is necessary in order to assure absolute supination, to have the anterior splint so constructed that it bends acutely at the elbow and extends partly up the arm. Again this splint should extend down to and include the hand, and the thenar eminence should be the point against which pressure should be made to hold this position. It is important to maintain this position from the very first treatment of the fracture, and whether or not there is swelling, the apparatus should be applied that will give perfect fixation. This can be easily accomplished by an anterior moulded plaster of Paris splint made at the time and applied, and the arm held in position until the plaster has become fixed. Later, when the swelling in the arm has subsided, the plaster can be more securely fixed to the arm and a posterior shell can be applied to the forearm.

When the fracture occurs in both bones at the same level and there is displacement, if one attempt to reduce under anesthesia fails, we resort to open operation.

In fractures of the elbow joint, I simply wish to call your attention to the fact that the right angle elbow splint is not the proper splint for the treatment of any type of fracture about the elbow joint. It does not conform to the principle that, should an ankylosis occur at the elbow joint at a right angle, or greater than a right angle, the extremity is of comparatively little use and the hand cannot be brought to the mouth.

With the exception of the fracture of the olecranon, flexion (110°) slightly more than a right angle is the position of choice. Whatever splint is devised for the treatment of such fractures must conform to this principle. The Robert Jones traction splint does not fulfill this requirement.

*Colles' Fracture.*³ The method referred to in the treatment of Colles' fractures as originally brought out by Dr. John B. Murphy of Chicago, whereby a fracture is splinted with the hand in flexion, is (although this was not a routine method advocated by Dr. Murphy) contrary to

surgical principles. The theory advanced by Dr. Murphy was, that after reduction has been made, flexing the wrist was the best aid for maintaining position. He accomplished this by placing a posterior plaster mold from the back of the forearm to hand. Theoretically, this position unquestionably gives an extra security but it is pretty generally conceded that a Colles' fracture once reduced stays reduced, and the ones that do not have probably not been completely reduced in the first instance. To understand the incorrect principle of this splint or method, it is only necessary to flex your own hand at the wrist and attempt to close the fingers. If by chance an arthritis should develop, or an unrecognized injury to the small bones at the wrist should prevent a normal extension of the hand, the gripping power of the hand would forever be lost. This method does not conform to surgical prin-



Fig. 3. Simple cast applied at time of accident to all fractures of the lower leg. This cast is molded to fit the leg from a piece of plaster slab. Note that it extends only half way around the circumference of the leg and gives firm support to the foot.

ciples: since, when injuries occur about the wrist joint, the hand should be kept in a semi-extended position maintained either by an angulation of the splint or a large pad placed in the palm. This principle has been particularly emphasized by Sir Robert Jones of England and all splints must conform to it to be correct.

There has been no attempt in this paper to cover the general field of fractures but rather to call attention to a few definite types and to note certain errors made in their treatment. Unfortunately, our mechanics and appliance men are not doctors and the majority of shops where the appliances are made are not in any way under the control of doctors, but it is left entirely to the discretion of the mechanic to build the splint as he sees it. In turn this splint is handed to a group of salesmen to demonstrate and sell to the

3. Outline of Treatment of Fractures—Page 17, Fig. 12. Reprinted from the Archives of Surgery, Jan., 1923, Vol. 6, pp. 172-194. (This pamphlet can be obtained from the A. M. A., 535 N. Dearborn St., Chicago. Price, 10c.)

profession at large, and it follows that in perfectly good faith, splints are accepted which have never been passed upon by a doctor. Many of them are mechanically wrong and again many of them do not conform to surgical principles. I was recently advised to buy a splint in my office—it was a Jones humerus traction splint—and was told that this splint could be used for all fractures about the elbow joint. Undoubtedly, such statements lead to misinformation among the general medical people who are not continually treating fractures and such ideas probably account for the large number of mishandled supracondylar fractures of the humerus—a fracture that can never be treated in a right angle splint.

In the Thomas splint, the mistake so frequently made in building the splint is that a proper angulation of the padded ring is not made and again the ring is made circular rather than slightly oval. The principle of the Thomas splint is that traction is made against the foot of the splint and counter pressure is made against the ischium. If the splint is so small that the ring will not fit up to the ischium when counter pull is made, swelling is liable to result in the leg. If the splint is too large, it will invariably slide over and press against the perineum. In elderly people it is liable to cause pressure sores. If these minor details are not carefully watched in selecting splints, good results cannot possibly be expected.

In 1915 I had an opportunity to serve in a British Hospital Unit, and not only to observe but to follow out their method in the treatment of fractures in a Base Hospital, also an opportunity to visit the hospitals among the French and Belgians. In Paris I found methods in the treatment of fractures of the femur, for example, that were so radically different not only as between one army and another but in the different hospitals of the same army, showing that no one was making any real advance in treatment except the American Ambulance Hospital under Dr. Blake, which was developing a standard equipment. When I returned with the American Army in the Spring of 1917, I found that a decided improvement had been made in the treatment of fractures but still no definite attempt at standardization. In 1918, largely through the efforts of Saint-Clair of the British Army, certain types of equipment had been sel-

ected and established as standard equipment and the result was that in every British hospital the equipment and method of treatment became the same. At this same time a group of men in the American Army in conference decided upon and accepted certain types of splints which had proved to have given the best results in the hands of the French and British allies and with comparatively few changes and modifications these splints were adopted as standard and were made in quantities to be used by the Expeditionary Forces in France. In both the British and American Armies, doctors as well as hospital enlisted men were instructed in the application of these splints and the result was that not only were our medical men adept at splinting fractures, but the enlisted men of the medical department as well, understood the principle and were able to splint and sling up practically any type of fracture. The result of this high type of work was that never in the history of fractures had there been such perfection developed as that period in the last year of the world war, and why not apply this lesson gained through military experience to our private work? The result would be two-fold in its value. First, it would give an ideal equipment of thoroughly tested standardized splints and methods and again in the case of a national emergency the subject of the splinting of fractures would be developed to the highest point of efficiency. At present there is a committee on fractures and standardization composed of members of the American College of Surgeons which is investigating and studying this question. Reports from this committee will be standard. Before splints are put on the market for sale, they should be passed upon by some competent committee and finally have the sanction of the Surgeon General's office.

If every hospital, every corporation, every medical organization and, finally, every individual doctor would limit their methods and splinting appliances to only those that have become standard through years of use, or to the later methods that have been accepted by the Surgeon General's office, or by the standardization committee on fractures, they will have simplified their technique and will have done away with the cumbersome and complex types of splints. Furthermore, this will simplify and make more definite the teaching of fractures.

DISCUSSION

DR. J. L. WIGGINS, East St. Louis: Dr. Rainey's paper is timely. We could offer the same comment had it been advanced from the time efforts to treat fractures were first intelligently made down to the present. Hippocrates, were he awakened from his long sleep, would open the discussion of this paper with practically the same remarks.

It is hard to understand why through that long period when fractures occupied the pinnacle of major surgery there had not been a more concerted effort toward standardizing their treatment. Yet, men of equal experience and opportunities pursued measures, which in many instances were at variance with the mechanics of adjustment, as well as the known anatomical balance. This attitude is not alone a criticism of the past, but has dragged its errors into the present. We find that even now in our large best equipped hospitals, where the elimination of nonessentials is expected, and the adoption of the improved methods imperative, methods are still in vogue which have no virtues to recommend them except the honored names of their originators. While the past had its full measure of errors, there was a period after the surgical renaissance of some 35 years ago when morbidity, the result of exaggerated or forced treatment, had its full measure of bad end results. While formerly there might be deformities with mild functional errors we escaped Volkman's contracture or destruction of members from tight bandaging.

One truth has been emphasized in our efforts toward standardization, there must be a comfortable maintenance of axial line. For this purpose there can be no better appliance in most cases of fracture of the humerus than the triangular splint, which Dr. Rainey has shown us. Could we follow this idea and select splints equally efficient in fractures occurring at other points, laying stress on the exceptions, but emphasizing the rule, there would be less chaos in the minds of those who have occasion to treat these injuries only at long intervals. In addition to the tight bandaging and resulting Volkman's contracture to which the essayist has called our attention, it might be well to consider the result of improperly reduced impacted Colles' fractures, when the ragged posterior edges of distal segment digging into the tendinous sheaths is the cause of so much disability and mutual disappointment. The late Dr. Murphy laid stress on this much overlooked condition.

While our text-books mention many splints for fracture, all will agree that there is probably one splint that is best adapted. There should be little difficulty in agreeing on the proper one. Even with a proper selection, we must not overlook the fact that any splint is efficient only through its intelligent application. Illustrating this point the late Dr. Hodgen on one occasion at the St. Louis City Hospital showed two cases of thigh fracture. In one emergency, treatment was given by a teamster, the other by a surgeon. The teamster had placed the injured limb in a trough made of bed slats, comfortably resting on pillows,

well immobilized; the surgeon had utilized a cigar box broken in strips and tightly bound around site of fracture. These cases as an illustration emphasize two points: one that the splint used in any case, no matter by what name it is known, becomes the individual splint of the surgeon using it. The other point is in the matter of transportation, which Dr. Rainey speaks of. When we realize that first attention is the autocrat of final results and that "As a tree falleth there it will be" we have gone far in the solution of many of our difficulties in the treatment of fractures.

DR. J. M. NEFF, Chicago: I was much interested in hearing what Dr. Rainey had to say, especially about Colles' fracture, and Dr. Murphy's method of treating them. I was with Dr. Murphy for about 11 years and it was during this time that he developed the treatment of Colles' fracture. His contention was that the proper treatment was to increase the deformity and then bring it forward and downward so that the silver fork deformity was entirely reduced. His practice was not to place the wrist in full flexion but to let it rest over the arm of the chair after reduction so that it was perfectly comfortable. A light posterior plaster cast was applied and left on for 4 or 5 days after reduction. The cast was then removed daily and massage and passive motions used until the fracture was united. I saw a great many cases but never saw a poor result.

Another thing which Dr. Rainey mentioned was that a right-angled splint for fractures of the humerus was not always applicable. I remember a case I saw a year ago, a very heavy man with fracture of the surgical head of the humerus. I put it up in a right-angled splint. The X-rays showed the distal fragment was not in alignment with the proximal so we took it down and put on a Jones' splint with the arm at the side. The apposition and alignment were perfect.

Dr. Rainey mentioned some of the things that occurred in France. We saw a great many simple fractures. I think Dr. Rainey will remember how we treated those fractures. We plated every long bone in the body. I am not advocating plating of all fractures but in military practice where they are simple I think it is the best method. In the British Military Base Hospital we were able to get the patients out in ten days by plating fractures, according to the Lane technique. We did not have a single case of infection at the 23rd General Hospital. I am not advocating that as a universal method of treating fractures but in military practice it is desirable because you can rid the hospital of patients in a very short time.

DR. T. J. SULLIVAN, Chicago: Without wishing to deter from the teaching of Dr. Murphy, because we all admired him, I desire to state that the anatomy is still more important. Colles' fracture is always produced when a person falls forward and puts out his hand to save himself. The same fracture can be produced on the cadaver. Place the arm on the table, have your assistant draw the arm back and with a large dissecting block, make a sudden severe blow and you can produce a Colles' fracture on the cadaver.

Turn the arm over, open up, dissect it and what have you? You have on the anterior surface a very thin periosteum which very easily fractures. It tears across. You have on the posterior surface a very thick ligament. It is that ligament untorn and still attached that is responsible for the position. To reduce that, always give an anesthetic unless the patient is in shock, and some of them are. To reduce the fracture reproduce the fracture, bring it back with all the force you can with the elbow down on the table and with the thumb right on the fragment, bring it back if it is disarranged because it is nearly always horizontal. It will slip back. If you do not do that you will find it sticks tight. After it is in position it makes no difference what splint you use. We used to feel that it was a good thing to use a strip of adhesive plaster. I would do what Dr. Neff suggests—take off the splint daily and produce passive motion. At the end of three weeks you can show a patient with a perfect arm, perfect motion and freedom from pain.

This work was first brought out by Moore of Rochester, later on worked out and fully illustrated by Pilcher and later by Donald MacCrae.

Another thing, it was he who worked out and taught the treatment of fractures of the humerus in the straight position and with passive motion you get good apposition and good results.

No doubt it would be a very good thing in all fractures to be transported to give the patient at the time of fracture, a half grain of morphin hypodermically. That is a time morphin is valuable. Morphin, one-half to three-fourths grain, hypodermically, given to the severely wounded is much to their benefit because it aids hemostasis and puts the muscle at rest.

DR. W. R. RAINEY (closing the discussion): I do not know whether or not Dr. Sullivan misunderstood me. In supracondyloid fracture of the elbow joint you never use a splint in the straight position. The only way to insure keeping the long fragment in position is to put the arm up in acute flexion. When you get such a fracture always make the patient move his hand for questionable nerve involvement, and if you put the arm in flexion, feel the pulse to be sure you have not cut off the circulation.

If you have a supracondyle fracture the muscle belly of the forearm will act as an aid to keep the fragment back in position, when the forearm is flexed on the arm. Otherwise you will get a posterior displacement of the condyles and the proximal fragment slides anteriorly.

POPULAR INSTRUCTION IN DIPHTHERIA*

MR. CHARLES F. GLUECK,
BOSTON, MASS.

It is indeed a pleasure and a privilege to be invited to address the Illinois State Medical Society, at its annual meeting, on the subject of "Popular Instruction in Diphtheria Prevention."

*Read before Section on Public Health and Hygiene, Illinois State Medical Society, Springfield, May 7, 1924.

No attempt is made in this paper to discuss questions of medical or scientific import. It is rather the object to illustrate a method by which the public can be informed of the achievement of science in preventing diphtheria. This should be in such form as to give sufficient knowledge to remove the dread and hesitancy usually found concerning serum treatments, which is caused by ignorance of the subject.

The entire object is to instill confidence and create a demand for immunization against diphtheria by the toxin-antitoxin treatment. Parents are always advised to consult their family physician for further advice on the subject.

In educating the public concerning the value of diphtheria prevention, the main problem presented is to convince the public that diphtheria is not an inevitable dispensation of Providence, but that each parent has it within his or her power not only to protect his or her own child from this disease, but, in addition, to assist in stamping out the disease in the community.

The problem involves a number of minor problems. The public must first be informed of the true nature and menace of diphtheria.

In order to do this it is necessary to show that diphtheria is a germ disease; that its cause—the diphtheria bacillus—is known; that it is transmitted from person to person; that it is a disease particularly of childhood; that as soon as school opens in September the disease spreads from child to child, the majority of cases in every year occurring between the first of September and the first of January. The disease is then carried home by the school children to their younger brothers and sisters, who, on account of their lower resistance to the infection, succumb to it.

The manner in which the disease is spread should be explained. The public should also be given some idea, not only of the symptoms of the disease, but of the effects produced by the disease in the body, and the reason for the unfortunate complications and after effects.

The second task is to explain why, in spite of our full knowledge of diphtheria, we still continue to have cases and deaths from this disease. The fundamental reason is that over a third of the diphtheria deaths occur in individuals who have had no medical attention or at best have had such attention only during the terminal stages of the disease. This condition exists in every community. The parents must be aroused to the danger existing in every case of sore throat

and the necessity of calling a physician to give such treatment as he may deem advisable in order to prevent diphtheria.

The objection on the part of some parents to permit the administration of antitoxin, before a positive report is received from the laboratory, is still a cause for a large number of deaths due to diphtheria. Undoubtedly there is a great need that the public be advised of the danger of not permitting the family physician to administer antitoxin immediately when there is a suspicion of diphtheria. This attitude of parents is almost entirely due to the inherent dread which they seem to possess regarding the use of serums.

Unfortunately, the fear still exists that illness or other unfavorable reaction takes place when antitoxin is administered in cases which laboratory tests have subsequently shown to be negative.

Some of the false impressions that exist concerning the dangers from antitoxin must be dispelled. It is always desirable to explain that antitoxin is an emergency measure, intended either to protect a person who has been exposed to diphtheria or to combat an infection already present. It should be emphasized that the protective effect of antitoxin is of short duration and that the immunity conferred lasts for a period or not over two to four weeks.

It should then be explained that an attack of diphtheria does not necessarily protect one who has recovered, against a future attack of the disease. In this connection, it is also desirable to correct the impression that the heart failures and paralysis following diphtheria are caused by antitoxin.

Other obstacles to be overcome are the reluctance of the public in consenting to have children undergo any treatment when they are well and when diphtheria is not prevalent, also the fear of any treatment involving the use of a syringe and hypodermic needle.

There is no doubt that the active opposition to all measures of preventive medicine carried on by the well organized and amply financed anti-vaccinationists has an effect on the popular imagination. The average individual, knowing little of the benefits which he has received from preventive medicine and still less of the principles involved, conjures in his mind (particularly when stimulated by the lurid literature of

the anti-vaccinationists), distorted pictures of the effect of such injections as those involved in the Schick test and active immunization, but when the details of the test and immunization are clearly presented to him, these fears disappear.

These problems can be met in a variety of ways; primarily, by straightforward talks to parent-teachers' associations and other public groups, through articles in newspapers, through pamphlets, and with the aid of motion pictures. The most important influence, however, is that of the family physician.

The success of any efforts to inform the public of the value of diphtheria prevention and to encourage the people to avail themselves of the facilities offered, depends upon a number of factors. The confidence of the public can only be gained by telling the people the principal facts, free from any exaggerated statements, and by showing them, either by actual practice or by means of motion pictures, the technique of the test and immunization.

So much depends upon the personality of the speaker, upon the sincerity and conservatism of his arguments and upon the truthfulness of any depiction of the methods used. The public is very quick to grasp any facts that are in line with their own experiences, and they are equally quick to doubt any statements or pictures that are contrary to their experiences.

The response of various audiences depends not only upon the facts already mentioned, but also upon the nature of the audience itself.

It has been found that audiences made up largely of foreign born parents will eagerly avail themselves of diphtheria prevention measures, if some one in whom they have great confidence advocates these measures.

This is also true of the parents of the children in parochial schools. If the priest and the sisters recommend these measures to the parents, a favorable response comes from a very large majority.

In other audiences, composed of average Americans, there is a tendency on the part of the individuals to place their opinions above those of the health officials, and it is this class that is frequently swayed by the statements of the anti-vaccinationists.

Among the most intelligent classes, the parents usually depend upon their family physician for advice. In all the campaigns that have been

waged to popularize diphtheria prevention work, an attempt has first been made to familiarize physicians with the measures involved, and to urge them to apply these measures in private practice. This effort, however, has not been as successful as was hoped, and it is now evident that if diphtheria is to be prevented, we must create in the public mind a knowledge of the true benefits derived from the Schick test and active immunization, so that parents will demand that their physicians immunize their children.

This end can best be accomplished through the schools where the children serve as a direct means of communication between those carrying on the work and the home. In this way a large number of parents are reached who are likely to discuss the matter in the family circle and then appeal to their family physician for advice.

In the school campaigns, in addition to addresses to the parents, it is desirable to place in their hands some short attractive pamphlet, describing the points already discussed, such, for instance, as the one I have here. At the same time, through other agencies, such pamphlets can be sent to parents throughout the country.

Then, through the medium of motion pictures, particularly when these pictures bear the endorsement of either a state or city health department or the approval of such influential agencies as the large life insurance companies, the public can learn, not only the whole story of diphtheria and its prevention, but they also come to realize that these measures are advocated by organizations in which they have great confidence. This means of visual exposition is one of the most impressive ways in which the public can be taught the true nature of diphtheria, and the simplicity and harmlessness of the method of prevention.

The opposition maintained by the organized anti-vaccinationists can best be overcome by meeting their objections squarely, and by asking the public to choose between the advice given by their family physicians or the advice given by organizations which have never done anything to save human lives.

The Life Conservation Service of the John Hancock Mutual Life Insurance Company was prompted to give publicity to the Schick test and active immunization by the apparent need of a better understanding on the part of the public of this means of preventing diphtheria.

Field investigations were conducted, based upon which studies were made, in order to ascertain what method of publicity would give promise of effective results. It was finally decided that a motion picture and a printed pamphlet would probably prove to be the best solution.

The motion picture which was produced as a result of this investigation depicts the hesitancy which the average family has in submitting their children to a serum treatment, and shows the danger incurred by delay and the consequent penalties of diphtheria. The last part of the picture illustrates the simplicity of the Schick test and the toxin-antitoxin treatment. This is done in a manner to show that there is no pain, that the treatment requires but an instant, and that a large number of children can be handled in a very short time. They submit with a smile, and the entire picture is designed to instill confidence in and a demand for the treatment. Just before the close of the picture, a case of tracheotomy is shown as a final reminder of one of the severe penalties of diphtheria.

Dr. Zingher, who is associated with Dr. William H. Park of the Bureau of Laboratories of New York City, directed the production of this motion picture, which the John Hancock Mutual Life Insurance Company offers for free distribution. Dr. Zingher, as you know, is one of the foremost authorities in the work of diphtheria prevention.

By visual education it is easier to reach a large number of people at the same time. This has the advantage of creating widespread interest, which resolves itself into a general community discussion of the subject. Any educational movement, started in this manner, will soon grow of its own momentum. Visual methods of education are the most successful mediums for reaching certain levels of intelligence, and those of foreign birth who have difficulty in understanding the English language.

The point of view of the audience must be considered, and, since visual education is intended primarily for the general public, technical terms should be avoided as much as possible. The subject should be handled in the simplest form possible, in order to get the story over.

The attitude of life insurance companies toward public health is not actuated by purely selfish motives but by a growing realization of a certain responsibility which cannot be avoided.

A recent investigation revealed the fact that five companies paid during a five year period over 22 thousand claims on deaths caused by diphtheria.

The knowledge that most of these deaths could have been prevented places squarely upon the life insurance companies the responsibility for some action of a practicable nature. The John Hancock Mutual Life Insurance Company, which I represent, recognizes this responsibility, and has tried to meet it in the manner described. It stands ready at all times to assist the medical profession in any way within its power, and invites your co-operation and suggestions.

In conclusion I wish to stress the fact that the work of educating the public on the prevention of diphtheria offers unusual advantages because it is one of the few diseases concerning which we have such complete knowledge. There are the laboratory methods to determine the existence of the disease, antitoxin with which to cure it. We also have the Shick test to determine susceptibility and toxin-antitoxin treatment for immunization.

A PLEA FOR COMPULSORY SCHICK TESTING AND IMMUNIZATION AGAINST DIPHTHERIA*

C. A. EARLE, M. D.,
DES PLAINES, ILL.

Dr. Hektoen says it takes about ten years for a real discovery in medicine to become generally known and appreciated. It is now 17 years since Theobald Smith first suggested mixtures of diphtheria toxin and antitoxin for active immunization against diphtheria. It is eleven years since Behring announced the use of such mixtures for immunization against this disease.

Since the prophesies of Smith have become realities by the pioneer work of Behring, Park, Lieutenant Hughes and others I am sure that no one can be criticised for at least recommending a relatively safe procedure which has for its object the prevention of such a serious disease as diphtheria.

Convinced as I am from my own experience that T. A. mixtures can, when persistently used, so fortify the system that few if any deaths ought to occur from this disease I wish to go further and place diphtheria prevention on the same

basis as the prevention of smallpox viz. compulsory immunization.

More is known of the cause, manifestations, pathology, treatment and prevention of diphtheria than any other disease. It is also known that this disease as it occurs in some lower animals squares exactly with the disease in human kind. In fact the guinea pig is the yard stick for measuring the strength of diphtheria toxin and antitoxin. It would not be safe to give a Schick test nor could the dose of antitoxin be measured if the reactions in the guinea pig were not analogous to such reactions in man.

It can be readily appreciated how important it is that the resistance of the guinea pigs used in these tests should vary as little as possible.

Laboratory workers the world over had observed slight variations in the resistance to diphtheria toxin in guinea pigs, but it was the alert brain of Smith that first showed the cause for these variations, and in the solution of this problem of variation of immunity of the guinea pig Smith unravelled the mystery of active immunity in human kind. He showed that the guinea pigs which had been used in testing mixtures of toxin and antitoxin were thereby actively immunized and in violence to the dictum even of Behring he showed that the immunized female guinea pig transmitted passive immunity to her young, and that this passive immunity of the young was an index of the degree of active immunity of the mother. This was an exceedingly important discovery for it enabled him by measuring the passive immunity of the successive litters of guinea pigs to follow the duration of active immunity of the mother. This duration of immunity persisted for two years and more.

It was in this report of 1907 that he made that memorable suggestion that human kind might thus be actively immunized.

In 1909 Smith again showed that mixtures of toxin and antitoxin produced lasting immunity in guinea pigs and again he suggested use of such mixtures for human immunization. But the prophetic finger of this medical Leverrier was unheeded until 1913 when Behring announced successful human immunization by means of injections of mixtures of toxin and antitoxin. He christened the child of Smith's fertile brain T. A. mixture. This announcement of Behring's was made five and seven years respectively after Smith had suggested

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such mixtures and yet nowhere does Behring mention Smith's name in this connection.

Park of New York was the first to thoroughly appreciate the value of T. A. mixtures and under his direction they have been more extensively used in New York than elsewhere. Thousands upon thousands of T. A. injections have now been given and, excepting the Dallas tragedy, all without unpleasant results in children. I have myself given more than 4,000 injections with no undesirable results except two small abscesses.

As I see it the modern control of diphtheria is 1. Test every child. 2. Give every susceptible child three doses of T. A. 3. Retest in four or five months and repeat the T. A. injections if necessary.

I have come to regard a positive Schick test as an infallible indication of susceptibility to diphtheria and the negative test as evidence of 100% protection against a severe attack of diphtheria. There is an unwarranted mystery surrounding the technique and interpretation of the Schick test. It is not absolutely necessary to inject the toxin into the skin. If it is injected just under the skin the test will not be vitiated. An area of redness $\frac{1}{2}$ of an inch or larger in diameter and persisting for three or four days is a positive test. It is distinctly a color test.

I have always advocated testing every child because at least half of the children of school age will be found to be naturally immune and it would not be scientific to give three doses of anything to a child when it is positively known that it is immune.

Who shall do this work? The family doctor. It requires no skill to give T. A. injections. The technique of the Schick test is easily acquired. The doctor should practice on himself and family before giving it to others. He should also familiarize himself first with the experimental work that Smith did on animals and the work of Park among the school children of New York. The knowledge and skill thus acquired have great potential possibilities, for similar tests and procedures for control of other diseases will undoubtedly be discovered.

The general practitioner will thus be virtually compelled to familiarize himself sooner or later with such procedures if he is to practice the science and art of modern medicine. If he

doesn't do it the Government will do it and thus the frightful nightmare of those who fear State medicine may become a reality.

Most of my work has been done in an orphanage of 1,200 children. During my 34 years service there we have lost as many children from diphtheria as from all other causes combined. During the latter part of 1918 we had 85 cases with 7 deaths. Immediately after this we began our Schick testing and T. A. work. We have not had a death from diphtheria since. In the spring of 1923 we had 18 possible cases of diphtheria; all recovered. All but one had given positive Schick tests. It is exceedingly interesting to study the incidence of diphtheria in the eight class rooms, in which these cases occurred, with reference to the Schick test. There were 462 children in these eight rooms. Of these 428 were Schick negative. Among these one developed diphtheria; an incidence of 1 in 428. There were 34 Schick positive children in the eight rooms. Among these 17 developed clinical diphtheria: an incidence of 1 in 2. In two rooms all the susceptible children developed diphtheria, but not one of the 95 immunes got it.

In view of the fact that the evidence is conclusive that children can, without danger, be permanently immunized against diphtheria, is it not time for the state to take steps toward compelling parents to protect their children against this serious disease?

DISCUSSION OF PAPERS OF DRS. GLUECK AND EARLE

DR. THOMAS A. MANN (Jacksonville, Ill.): I have been very much interested in this discussion since I have had some experience in the administration of toxin-antitoxin to school children in North Carolina, from which state I have recently come to take up public health work in Illinois.

In North Carolina I had the pleasure of vaccinating during December, 1923, about two hundred and fifty school children with toxin-antitoxin, without using the Schick test.

North Carolina is giving herself credit for doing a little advance work in disease prevention. There, as in other sections, health officers, however, must be guided by the size of their appropriations in planning their work. When working with only 30 cents per capita it is impractical to do Schick testing, and if we wish to get mass immunization we cannot wait for physicians to do the work, but must go into the schools. I believe that the future will show that most

of our health work must be done primarily through the school children.

In my work in North Carolina I used what I call the voluntary plan. I simply went to the schools and talked to the children, advising them to be immunized against diphtheria, and explained that we would only take the first four grades. In that way we felt that we reached the majority of children who were most apt not to be immune. We had no trouble whatever. We did not ask the parents, but simply went to the schools and took the volunteers. We did the same thing with typhoid vaccination. Typhoid vaccinations among school children in North Carolina, however, have been much more extensive. I suppose there have been one or two hundred thousand children who have been vaccinated against typhoid fever.

I have also done "voluntary vaccination" against smallpox. In January and February of this year I found in Bladen County, North Carolina, that the school children were not protected against smallpox. You will find that all over the country. I have already found it in Morgan County, Illinois.

We can not get the children vaccinated by advising them to go to their physicians. Bladen County has a school population of about thirty-two hundred children. I went into the schools and with two nurses vaccinated twenty-eight hundred children in two months. As with other vaccinations, we only took the volunteers.

It is my opinion that work of this nature can best be done without force. There is no need of having a law. The only force we need is the force of education, then we can get our work done.

CHAS. F. GLUECK (John Hancock Mutual Life Insurance Company, Boston, Mass.): I would like to ask Dr. Mann a question. Did I understand you to say you got only the consent of the children in the diphtheria work?

DR. THOMAS A. MANN (Jacksonville): No, we asked the children beforehand. I generally made a preliminary visit to the schools and advised the children to talk it over with their parents and explained that when I came to immunize I would only take the ones who were willing. With this plan there was no chance for resistance. Vaccinations became popular. One little girl in the first grade who was vaccinated with the others said to me, "Doctor, my mama told me not to be vaccinated but I wanted to be vaccinated anyway, but she won't care."

With all the twenty-eight hundred I think not over a hundred were out of school with their arms and these were home only a day or two. There was of course some headache and febrile reaction with many, but I had explained that to the children beforehand. The best way to do the work is to tell them the absolute truth; never try to deceive a child.

DR. W. C. COOK (Peoria): Dr. Mann is certainly illuminating as to the methods of certain localities. I imagine if I were to pursue his measures in Peoria

we would have a riot; as a matter of fact, as one public health official I rather believe from the nature of things we have not progressed so far in public health measures as that it would be safe, it would be sane to follow entirely what our good Doctor has suggested. I personally will go through no other source than the family physician. Naturally we are the foundation in our field efforts to make that co-operation one hundred per cent, but I hardly feel in Illinois, more especially that section of Illinois that I feel somewhat conversant with, that we are at all ready to give those who see State Medicine just around the corner the one grand opportunity that they are looking for.

The other statement that Schicking was not done promiscuously. I rather feel that Dr. Earle, at least he voices my sentiments that it is rather unscientific to do a wholesale TA, without first knowing those who are already immune, and the only stumbling block I see there is the fact that I do know a child may be immune today and a year hence he is susceptible.

In my efforts in Peoria Public Schools I worked odd grades each year, at which time we follow the card that I presume the most of you present are familiar with—it is sponsored by the State Department for physical examination—a record is kept, being the only medical officer of the Peoria Public Schools, serving from two to five hundred pupils, we do and are doing that part with the odd grades which means that each child has this examination and a record is made every other year.

Dr. Mann had a suggestion, I feel, and not being known as a conservative in most respects some of you present may wonder why I would fall in so readily, but I know in the city of Peoria in the north central territory they are not ready for that sort of thing.

DR. H. O. MUNSON (Rushville): I would like to ask this question. In view of the recent ruling of the Supreme Court, how we could enforce immunization for Schick test?

I understand the recent ruling is you can not compel a child to be vaccinated for small pox or diphtheria or exclude them from school. I ask that question for information.

DR. C. ST. CLAIR DRAKE (Chicago): May I ask Mr. Glueck a question?

In the event the local health organization was going to put on a campaign of education against diphtheria, would it be possible to secure those films you have, would you loan them and on what terms?

CHAS. F. GLUECK: I think we have about one hundred twenty in circulation now. They are one reel, one thousand feet, and we usually send a record of the story in printed form. It runs about forty minutes I would say. We have a pamphlet we put out similar to this one (exhibits pamphlet).

DR. C. A. EARLE, Des Plaines (closing discussion): As to the variability of the Schick test, my own work leads me to believe that a child 3 yrs. old or above, who is once Schick negative will always be

Schick negative. Of course a dose of antitoxin given a month before the test would vitiate the test.

Vaccination against smallpox cannot be made compulsory under the present ruling of our courts in Illinois; but in the presence of an epidemic of this disease children can be excluded from schools unless vaccinated. My plea is to place diphtheria on the same basis as smallpox, that is, exclude the non-immunes from school in a community where diphtheria is prevalent.

I think the Doctor from North Carolina is probably right when he states that the great work of diphtheria immunization will have to be done by the state through its health officers.

Dr. J. J. McSHANE (State Department of Health, Springfield): Dr. Munson asked a question. "In view of the recent ruling of the Supreme Court, how we could enforce immunization for Schick test?"

We can not require children to take the Schick test, neither can we require them to be vaccinated but we can exclude children from the schools when smallpox becomes prevalent in a community or threatens to become epidemic. The exclusion is by ruling of the board of health.

There have been a number of decisions relating to compulsory vaccination. The one Dr. Munson refers to is a recent decision of the Supreme Court relative to the exclusion of a child from the public schools of Chicago who refused to be vaccinated.

The Supreme Court held that the health department notified the city superintendent of schools who in turn notified the principal to exclude all children in a certain school where smallpox was prevalent who were not successfully vaccinated for a certain period of time. The Supreme Court held that inasmuch as all exclusion orders must come from local boards of health and boards of education that since there was no board of health in Chicago and no ruling relating to the exclusion of children in this case by the board of education that the superintendent could not require children to be vaccinated.

In Granite City when the city had a number of cases of smallpox, in the trial of *Larner vs. Hagler*, the Supreme Court relative to the exclusion of unvaccinated children, held the board of health had the right to formulate rules and regulations requiring that school children be vaccinated when smallpox is epidemic in the vicinity of the school or danger of epidemic may be apprehended. Under this ruling boards of health may require the exclusion of unvaccinated children when smallpox is prevalent in a community or threatens to become epidemic.

DR. S. C. BEACH (Chicago): It happens to be within the ken of my knowledge we have two states only in the United States which have compulsory vaccination laws; one is Rhode Island and the other is Kentucky, and Kentucky is so clever in putting this over that she makes this regulation. You don't have to be vaccinated but an employer can't hire you unless you are. Kentucky gets everybody vaccinated.

THE PATHOLOGY AND BACTERIOLOGY OF PUTRID AND GANGRENOUS PRO- CESSES WITH SPECIAL REFER- ENCE TO THE FUSIFORM BA- CILLI AND VINCENT'S SPIROCHETE*

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CHICAGO

Introduction: For convenience, we may divide putrid and gangrenous processes into three large groups so far as their bacterial relationships are concerned. First, there are the gangrenous processes that are caused primarily by the activities of the Colon bacillus and related organisms. These processes occur chiefly in connection with the intestinal tract and the genito-urinary system. Such processes are common in the appendix, in and about the lower bowel, and about the urinary bladder and the kidneys; also especially in the female about the pelvic organs. For example, a large proportion, possibly ninety per cent. of gangrenous appendices is dependent on the activities of *B. coli*. The second group of gangrenous and putrid processes are those associated with the activities of the Welch bacillus and related anaerobes. Such infections are frequently gasogenic in character and commonly located in the muscular system and the gastro-intestinal system. Frequently the infection results from wounds. This group of infections was brought into special prominence during the recent war. The third group of putrid processes is dependent upon the activities of the fusiform bacillus and spirochetes. This third group is a very large group, possibly larger than the first two groups combined. Their distribution is wide, and the character of the process varied, at times being very extensive and at other times being quite insignificant.

A few words concerning the properties of fusospirochete organisms will be in order, so that the specific pathogenic reactions of this organism may be better understood. Fusiform bacilli and spirochetes are almost invariably found associated. Not only are these two organisms found together, but they are also found in association with a third organism which is usually one of the pyogenic cocci. The particular pyogenic coccus

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co-operating with the fuso-spirochete organisms depends very largely upon the location of the infectious processes. About the respiratory passages it is some member of the streptococcus group that usually works with the fuso-spirochete organisms. About the genitalia, staphylococci are usually the associated organisms. In the intestinal canal apparently both streptococci and *B. coli* co-operate with the fuso-spirochete combination.

I wish especially to emphasize the importance of this association of organisms in bringing about these pathologic processes, for as a general rule any one of these organisms working alone would not, under the conditions, give rise to the lesions.

The fusiform bacilli comprise a rather large group. They are fusiform in shape, are anaerobic, serophilic, stain readily with ordinary dyes, Gram negative, and extremely pleomorphic. Ordinarily they can be cultivated readily, though difficulties may be encountered in obtaining them in pure culture. Alone, their pathogenicity is extremely limited.

The spirochetes associated with them seem to belong to several varieties, some being large, others small. Cultivation of these organisms is extremely difficult; apparently some have not yet been grown on artificial media.

The fuso-spirochete organisms belong to a group of bacteria that we have conveniently referred to as *opportunists*. By this is meant simply that they are organisms commonly found about the body, leading a saprophytic life but with potential pathogenic powers. When certain conditions arise leading to a more favorable environment, they are prone to develop, as a rule, quite rapidly and give rise to pathological processes. In this respect, they are quite like many other well-known organisms, such as the pneumococci, streptococci, *B. coli*, and others.

Normal Distribution of Fuso-Spirochete Organisms: I wish to refer here to a fundamental principle not sufficiently recognized in connection with infectious processes: namely the distribution of infectious processes in the body is very largely determined by the normal distribution of the opportunist organisms causing such infections. For example, the normal habitat of staphylococci is the surface of the body, especially the skin surfaces, and we know that most staphylo-

coccus infections occur on the skin, in the skin, or in adjacent structures. Even though staphylococcus infections occur in the interior of the body, upon analysis it usually can be shown that the organisms came more or less directly from the skin.

So also with streptococci; these organisms normally occur in the throat and upper respiratory passages and most streptococcus infections appear in these localities.

Fuso-spirochete infections furnish a very striking illustration of this principle. We have in our laboratory made a special study of the normal distribution in the body of these organisms and find that they occur chiefly in four localities; first they are commonly found in the crypts of the tonsils; second they occur in large numbers on and about the teeth; third they are frequently found normally in the intestinal canal in the region of the appendix and caecum; and fourth they are found normally about the genitalia, in the male in the preputial sac, in the female about the clitoris. In studying the distribution of infections by these organisms, we find that such processes occur chiefly in or near these four localities above mentioned.

In the tonsil crypts, these organisms occur in two forms: first, diffusely distributed over the epithelium; and second, in definite small caseous granules. These granules occur in about thirty per cent. of all tonsils that are extirpated. Probably every one with tonsils has them at times in the crypts. They are usually multiple. They are gray or greenish-gray, small, brittle, radiate and have a peculiar offensive and characteristic odor. Ordinarily they do not penetrate the epithelium but remain localized, frequently causing cyst-like dilatations of the crypts. When examined microscopically, these granules reveal at their margins small extrusions which have a structure resembling an ordinary test-tube brush. There is a central shaft made up of one or more filaments, and arranged perpendicularly thereto are innumerable fusiform bacilli and spirochetes. Scattered throughout the granule are many coccoid forms, especially streptococci, both hemolytic and viridans.

On the surface of the teeth near the gingival margin, similar granules occur. When examined under a microscope they present a somewhat ray-like appearance with similar brush-like protrusions.

sions at their margins. Smear preparations of this material reveal many fusiform bacilli and spirochetes as well as streptococci and buccal lepto-*thrix*.

Relation to Infection: I will now take up especially the pathological processes that are caused by these organisms and in doing so I will discuss lesions in various localities of the body, beginning with the structures about the head. One of the most typical lesions caused by these organisms is known as Vincent's angina. This lesion appears usually first upon the tonsil or nearby surfaces, and, indeed, very frequently about the edges of the tonsillar crypts. There are two anatomic forms of Vincent's angina, one where the lesion is superficial and not associated with much odor; the other is deep and destruction of tissue is more or less characteristic. The latter is usually very fetid. Examination of such lesions reveal large numbers of fuso-spirochetes. Indeed, at times the organism appears in practically pure cultures. Often, however, pyogenic cocci also appear. The question has arisen as to the source of the fuso-spirochete organisms in this disease. This condition at times appears as distinct epidemics, and in these cases it would seem that the transmission is direct from person to person, as in diphtheria. Other cases appear to be distinctly sporadic and from an examination of the tonsils it would seem that fuso-spirochete organisms from the crypts of the tonsils or possibly from the teeth for one reason or another become pathogenic and cause a localized infectious process.

Ulcerative gingivitis years ago was shown by Gilmer and Tunnicliff to be caused by fuso-spirochete organisms. In this disease apparently when proper predisposing factors are present these organisms, which normally occur about the teeth, grow rapidly on the buccal mucosa and cause a dissolution of tissue, resulting in a lesion somewhat similar to the lesions above described on the tonsils.

Moorehead and the writer have recently shown that these organisms are frequently found in the exudate obtained from chronic alveolar abscesses. They are practically always associated with streptococci, usually the streptococcus *viridans*. It is the fuso-spirochetes that are largely responsible for the solution of the tissue and for the putrid character of the exudate. For example, in twenty

cases of chronic alveolar abscesses, the fusiform bacilli and streptococci were found in all, and spirochetes were shown in association in sixteen. Undoubtedly, in this common condition, the streptococci are the aggressive organisms and may have been the primary agent, the fuso-spirochete organisms entering secondarily but modifying materially the character of the process.

Also in pyorrhea alveolaris and other similar lesions about the mouth, fuso-spirochete organisms are commonly found in large numbers usually growing with pyogens. It may be true that they are at times primary agents, but probably in most instances they are merely secondary invaders taking advantage of certain factors such as vascular disturbances, associated infection, foreign body deposits, diet deficiency disease, etc.

In putrid otitis media, fuso-spirochete organisms are nearly always responsible for the fetid character of the discharge. Usually the otitis media is primarily a coccal affair. When the fuso-spirochete organisms invade the ear secondarily, the exudate quickly becomes putrid in character. The bone may or may not be involved. At times, the fuso-spirochete organisms invade the various sinuses of the head, and so occasionally we have a putrid sinusitis, ethmoiditis, and so on.

Pilot has recently investigated a large series of pulmonary lesions of different kinds including pulmonary abscess, gangrene, and bronchiectasis. The bacteriology of these lesions centers largely around the presence of fuso-spirochete organisms and streptococci. Thirty-seven cases of such infections were studied. The bacteriologic, pathologic, and clinical studies indicate that this type of infection forms a distinct clinical entity. The process as a whole may be referred to as a fuso-spirochete pneumonia, though pyogens nearly always play an important contributory roll.

The lesions are largely in the form of simple or multiple abscesses together with a diffuse form of gangrene. The development of these processes in the lungs depends to a large extent upon such factors as tonsillectomy, general anesthesia, aspiration of foreign bodies, perforating lesions in the trachea, bronchial carcinoma, tuberculosis infections of different kinds especially pneumococcus infections and also upon circulatory disturbances of various kinds. In a few, typical gangrene of this type may develop with-

out evident predisposing causes. It is interesting to know that probably in all cases, the sources of infection relate back to the mouth or throat where the fusiform bacilli and spirochetes normally grow. The prevention, therefore, of these pulmonary infections would appear to lie largely in the proper hygiene of the mouth.

In pulmonary tuberculosis, it is interesting to know that infections with fusiform bacilli and spirochetes are rare. However, occasionally the association of these organisms with the tubercle bacillus does occur, resulting in a diffuse putrid gangrene superimposed on the tuberculous process. In our series, five such cases were studied. These seem to occur more commonly in those patients who have been particularly careless as to mouth hygiene.

Brams, working with us, has directed his attention especially to the occurrence of these organisms about the genitals of the male. Under normal conditions, he found that they occurred in the preputial secretions of fifty-one per cent. of one hundred men. Other organisms commonly associated with them are staphylococcus, streptococcus hemolyticus and colon bacilli. A comparative study of the flora of the normal preputial secretions and the secretions from cases of gangrenous balanitis reveal a striking similarity in both smears and cultures. The conclusion has been drawn from this study that in gangrenous and erosive balanitis the usual source of the fusospirochete organisms is in the normal flora of the preputial sac and not as formerly thought in the buccal secretions. Fusiform bacilli and spirochetes were also found in the normal smegma of twenty-one of thirty-six pregnant women. They appear quite like the organisms found in the preputial secretions of men. Infections caused by these organisms have been known to occur in women and presumably the source of such infections is also in the smegma of that locality. In both male and female, predisposing factors are important in determining these gangrenous lesions of the genitalia.

A considerable amount of investigation has revealed the not uncommon presence of these organisms in the intestinal canal. It would appear that a small proportion of gangrenous appendices, not over five per cent. or thereabouts, have been the result of the activities of the fusospirochete association. Here too, as in other localities, predisposing factors such as foreign bod-

ies, associated infections, vascular disturbances and the like operate in causing these organisms to grow.

It has long been known that serious skin infections of a gangrenous character resulted from bites of individuals, especially individuals having dirty mouths. On investigation, it has been shown that fusiform bacilli and spirochetes usually along with cocci are found in large numbers in such lesions. No doubt these organisms in these instances have been directly introduced by the biting process resulting in a serious type of infection.

Animal Experiments: For experimental production of putrid and gangrenous processes with these organisms, we have found the rabbit especially suitable. Introduction of the material under the skin in suitable amounts in the region of the neck or directly in the pleural cavity will result in the formation of a putrid process, the fusiform bacilli and spirochetes being present in the exudate. The presence of associated cocci, especially streptococci, is no doubt an important factor in determining the progression of the process. The cocci appear to be more aggressive, advancing into adjacent tissues, whereas the fusiform and spirochete forms follow later and cause the gangrene. If the dosage of organisms is large enough, the rabbit will die within a few days and at the site of injection will be found extensive putrid processes. If this is the pleural sac, the entire cavity may be filled with a stinking exudate, the heart and opposite lung being compressed to one side. Putrid empyemas may readily be produced in a rabbit by the introduction of such material as the tonsil granules, tartar from the teeth, and pleural exudate from gangrenous empyema.

Prevention: In discussing prophylaxis, I must again refer to the principle enunciated in the early part of this paper, namely, that the distribution of infectious processes caused by these organisms is largely determined by their normal habitat. In order to lessen the number of these infections, it would appear reasonable to diminish as far as possible the number of these organisms normally present about the body. While it may be out of the question completely to disinfect for example the mouth or the tonsils, the number of bacteria there may be greatly reduced by various procedures. We now appreciate that diminishing the dosage of bacteria is an impor-

tant element in prevention. Removal of the tonsils and draining of the crypts containing these fusio-spirochete granules are rational procedures to pursue. A frequent cleansing of the teeth, especially between them and about the gums, removal of tartar and pus pockets and in general establishing a clean and healthy mouth would clearly be indicated in this connection. It would appear reasonable to exercise special precautions in persons about to undergo anesthesia for any purpose, especially in tonsillectomy or operations about the mouth or throat. About the genitalia in the male, frequent cleansing of the preputial sac would appear to be practically a sure prevention, and in females the parts about the clitoris should receive particular attention. Circumcision is a sure preventive measure against this type of infection.

Treatment: In relation to treatment, I will merely say that at the present time many of these cases all over the world are being treated with arsenic largely in the form of arsphenamine. For a long time it has been noted that such preparations appear to have a favorable effect upon these infections. Our studies have been largely of a pathological and bacteriological nature and only more or less incidentally have we taken up the treatment of these conditions. On the whole, we have noted several strikingly favorable results following the administration of arsphenamine in bronchiectasis and other pulmonary conditions. Pilot has noted diminished expectoration, disappearance of foul odor of the sputum, less fever and other favorable signs. Of course, old anatomic defects can not be changed thereby. It is evident that the infection should be treated with arsenic as early as possible, and selected cases at least should receive arsenical treatment before more radical surgical procedures such as pneumothorax are employed. In many cases, it may be well to combine surgery and arsphenamine in the treatment.

SANITATION OF THE COMMON CARRIERS*

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Take a great city with its miles and miles of residential and industrial districts, place it on wheels and run it over steel roads to far dis-

tant points at a 45 mile an hour rate of speed, providing meantime for the health and comfort of its 100,000 inhabitants and you have a glimpse of the daily problem of the common carrier, this term being legally descriptive of the great railway systems of these United States.

This work must be performed without fail every twenty-four hours in varying climates and temperatures, serving all classes of travelers with their varying needs and delivering them to their destinations in health, comfort and safety.

In the accomplishment of this task sanitation necessarily performs its part, a fact which is becoming realized more each year, this being shown by the attention given it by railway organizations and the placement of sanitation under a special department. Cleanliness, the cornerstone of sanitation, must be maintained; the needs of the people as regards hunger and thirst, physical comfort and the satisfaction of the renal and intestinal emunctories must be properly subserved; the fatigue of the day must be relieved by proper and cleanly resting places where weary bodies and tired minds may prepare for the coming day's problems in restful sleep, and all this must be carried on under healthful temperature conditions, correct ventilation and an abundance of light, both natural and artificial.

The common carrier must transport the healthy and vigorous and, under restrictions, the weak and ailing; must deliver them to their destinations with health and vigor unimpaired or, in case of sickness, with due care and gentleness, providing for their many and varying needs enroute.

To do this an army of trained employees must be maintained, which must have its own offices and shops all properly heated, lighted and ventilated, in which to carry on the vast labor needed to direct and maintain the equipment used in this great work. In addition, stations or depots must be provided at each and every point at which a train receives and lets off passengers; these in their turn must be built, equipped and maintained so as to provide fit and proper waiting accommodations for patrons of the railway.

This, briefly, is the sanitary problem of the common carrier, thus outlined in order to consider the methods of handling and to more fully understand their importance and the need of skillful supervision; it is one of the departments of preventive medicine, that lusty and growing

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infant of medical science which at present is engrossing the thought and attention of both profession and laity. It is the problem of prolonging life and freeing it from the pitfalls and dark days caused by preventable disease. A remarkable and complimentary commentary of these present times is the fact that civilization has consented to listen to the voice of medical science admonishing the people "this could have been prevented" and actually striving toward such prevention, the results being shown in smallpox, diphtheria, typhoid, yellow fever and other diseases, all this evidencing a keen and growing desire for knowledge and a cooperative spirit which will result in even greater advancements.

Today our beautiful and productive Southern States are fighting malaria with constantly growing interest and success, in which work the Illinois Central Railroad is cooperating, and with every indication of ultimate obliteration of this persistent and insidious disease. Just as the great mass of humanity are today striving and cooperating towards betterment in health, so the railways are doing and feel that the public is aiding and abetting their efforts by a compliance with health regulations, an expressed appreciation of equipment and facilities and an evidenced cooperative spirit shown by appreciative treatment and patronage of the means of travel provided.

In 1911 the first great railroad system began to sanitize methodically and under the direction of a special department, employing a full time doctor-engineer to travel and inspect, recommending corrections to the officials of the road from whom orders emanated for the betterment of existing conditions. These corrections were along the line of public health progress and in accordance with the laws of the states traversed by the railroad. Presently these states, either individually or under the direction of the United States Public Health Service began to take a greater interest in the health and sanitary direction of their people and laws were promulgated to that end. The railways, passing through many of these states, each of them having individual laws not always in accordance with each other, began to encounter difficulty in complying with such opposing regulations and progress was more or less hampered. As a result a committee of experts drafted the Railway Sanitary Code,

which conformed with the various state Laws and in 1920 was approved by the Surgeon-General, adopted by some thirty-five states and by the American Railway Association as recommendatory practice. As a result progress was resumed and harmonious conditions prevailed.

This Code is known as the Standard Railway Sanitary Code and deals definitely with the sanitation of offices, shops and camps, cleaning and disinfection of coaches and stations, water and ice supplies and transportation of persons having communicable disease. Its relation to the subject in hand will be referred to during the progress of this paper.

Now let us think for a moment of the unit of the passenger train, the modern steel coach, seating eighty-eight people and costing about \$15,000; this coach makes approximately 1,000 miles a day and carries from one to three hundred passengers on its entire trip during which time it must be kept cleaned, warmed or cooled, lighted and ventilated; when it reaches its destination it is seized upon by an eager switch engine and with its companion coaches hurried to the coach cleaning yard where it is invaded by an army of cleaners, swept by an eighty-pound pressure blower, its cushions cleaned and vacuumized, its entire interior disinfected and deodorized, the wood work cleaned and renovated and its windows washed. While this is going on inside another army is at work on the outside, the entire surface being gone over and made to look almost like new. Then come the electricians, water and ice men, repairmen and finally the equipment inspectors, the finished result being that within a few hours it is once more ready to receive its load of human freight and bear it in comfort and safety to its destination. Divisions three and four of the Standard Railway Sanitary Code deal with these matters and tend towards that economic mecca, standardization. The process described puts the coach back into service but does not take into consideration the approximate upkeep in transit, which is provided for by train porters and a partial cleaning done at prearranged points along the line of travel where the train schedule permits of needed time.

The stations must be cared for in accordance with their needs, some demanding a special corps of cleaners numbering forty or fifty and some only two or three, others being cared for by

traveling cleaners who attend to twenty or thirty stations every month, doing this by assigned districts. All these employees must be furnished with the necessary materials and paraphernalia and each station must be kept up to the sanitary standard demanded. There are presented also special problems in getting rid of pests with which the coaches may become infested, these ranging from the animal to the human variety and including rats, flies and mosquitoes. Each station must have its toilet conveniences, which range through a wide variety of equipment but all susceptible to contamination and in need of cleaning and disinfecting from two to six times every day. This latter forms one of the most vexing necessities which the railroad has to provide by reason of mistreatment and ignorance of equipment, the usual small town looking upon these places as civic conveniences and using and misusing them accordingly.

Not the least important is the sanitary upkeep of the offices and shops which house the brains and brawn of the busy employee, who, in order to give the best effort to the railway, must be furnished with sanitary conveniences to the laudable end that the maximum health be maintained.

It is a simply performed act to rise from one's seat in a coach and walk to the drinking water tank at its end, there obtaining a refreshing drink of cooled water but if this assemblage but knew the work, legislation, inspection and supervision it had taken to get that cooled water there, to have it germ free and in a properly constructed tank which separated the ice from the water, it would be much surprise.

Lists of watering places are submitted by the railroads twice a year; the sources of this water are then surveyed by the State engineers and samples are analyzed in the laboratory, the results being transmitted to the Surgeon General of the U. S. Public Health Service and certificates issued permitting the use of the water if up to standard. Should the water be substandard signs reading "Unfit to drink" are posted and we must look elsewhere for certified water. But few travelers know that when they drink water from a railway coach drinking tank, it is and must be government certified. The law has for some years past required individual

drinking cups and all regulations emphasize their use.

Do all these precautions pay? Yes, and a thousand times yes for typhoid has dropped from 80 deaths per 100,000 to 1.2 and where, a few years back, typhoid was a yearly visitor, its advent is now featured in the daily papers and some city receives a black mark in the shape of undesirable publicity.

There is no problem handled more expeditiously or carefully by the railroads than that of drinking water and the present tendency is all towards greater care and more careful supervision.

The food question with the railroads is one of the greatest delicacy and necessity for the traveler must have his appetite appeased at the regular and habitual hours. To do this great commissaries must be maintained, dining cars equipped and run in all long distance trains, and restaurants provided along the line of travel, and when the statement is made that this service is the cause of thousands of dollars yearly loss to the common carrier it is received by the public with an incredulous stare. Yet it is true, for the cost of running a first-class dining service which passes sanitary inspection and satisfies its patrons is tremendous and it must be maintained whether three are served or three hundred. The next time you and your wife are the only occupants of a dining car at meal time, just remember that it is only one of a large number of such discouraging trips. The steward in charge of the car is a veritable maitre-de-hotel and skilled in his line; from the chef and his three assistants down to the humblest waiter they are all high priced and experienced food handlers and subjected to periodic medical examination several times a year—this in accord with Sec. 72 of the Code. A special laundry service must be maintained to provide an abundance of clean linen for the tables as well as suits for the crew. The kitchen is a marvel of compactness and cleanliness and subjected to the most rigorous inspection. From the time of the purchase of the food to the moment of serving, it receives the most careful attention and every railroad takes pride in its dining car service.

Many restaurants are also maintained by this department, usually being located in the larger

depots along the line. These have also a lunch service to cater to that unfortunate American habit of rapid eating. Some restaurants are maintained by outside companies but the old time railroad eating house with its "twenty minutes for dinner" call has become largely a thing of the past.

When it comes to communicable disease rulings the way of the transgressor is indeed hard for the reading is so explicit that no one can be held ignorant and the Railroad Sanitary Code opens with significant statements regarding persons "knowing or suspecting" themselves to have certain communicable diseases and forbidding them to travel. It further forbids them to accept transportation, such as might be secured by a scheming friend or sold them unknowingly by an agent of the railroad. All this is as it should be but witness the duplicity of an Alabama negress with smallpox, desirous of visiting her kin folks in Chicago; she, being in full splendor of the eruptive stage of the disease and knowing full well that she would not be allowed to travel, carefully muffled her face in a shawl and rode all the way to the big city undiscovered and then would have escaped in triumph, had not the playful wind from which Chicago sometimes takes its name, blown the shawl away from her face and she was apprehended and sent to the hospital for contagious diseases.

It is a significant fact that of the five communicable diseases enumerated in Section one of the Code four have largely disappeared in this country and the fifth, smallpox, is on the wane.

The railways are forbidden by Section 8 of the Code to transport leprosy cases unless a permit to travel has been issued by the Surgeon General and the State Boards of Health in which the case resides and to which it wishes to go and then only under the specified conditions of isolation and other restrictions devised to prevent the spread of the disease. It is to be regretted that the old law has been abolished requiring lepers to cry out "unclean, unclean." Would that it could be revived and extended to cover cases of social disease.

Whereas the railways are forbidden to transport five of the communicable diseases a dozen others, as diphtheria, measles, scarlet fever, etc. are allowed transportation under isolation in a separate compartment and the attendance of a

nurse, who shall restrict communication with the patient, disinfect all dishes and utensils used, burn sputum and nasal discharges after receiving same in suitable container and, in case of typhoid, attend to disinfection of the discharges from the renal and intestinal emunctories.

The Code further permits the railway to carry isolated communicable disease patients under declaration of an emergency, in which it is deemed necessary for the purpose of saving life.

All coaches occupied by communicable disease patients are treated as infected premises and rigorously disinfected before again being used.

In conclusion attention is called to the fact that the railways are taking a keen interest in Sanitation, which is fostered by the interest of the employees and directed by the Medical and Surgical Section of the American Railway Association and by committees formed from that association and the American Railway Engineering Association. A strong cooperative interest exists between Governmental, State and Railway sanitarians and it is this interest which makes for the progress being achieved at the present time.

DISCUSSION

Dr. A. L. Mann, Elgin: The paper was very good, but the unfortunate part about it, if it only appear in the State medical literature the laity will miss it. I don't know how you are to get it into publication unless some action is taken whereby it can be republished.

Dr. Frank Wieland, Chicago: I would like to ask the doctor how often the drinking water tanks are washed out and sterilized. The reason I ask, I recently had a drawing room from Chicago to New York, on another road, and I thought the water was not pure. I did not know whether the ice came in contact with the water or not.

Dr. H. W. Smith, Roodhouse: Dr. Beach made a statement in regard to decreasing cases of typhoid fever. I practice medicine in a town of 3,000 and naturally a great deal of my practice was in the country. Twenty-five years ago I had 15 to 40 cases every fall, but I haven't treated a case of typhoid fever now since a year ago last November.

I can't see that the sanitary conditions are very much improved so far as the outside wells and toilets are concerned in the country. They haven't made such improvement in the water supply, but what has brought about this wonderful change in typhoid fever, they have screened out the flies. If you took dinner in the country 25 or 30 years ago there was a fellow standing there with a peach tree limb brushing the flies from the table.

I find yet in the country, well-to-do farmers, versed

in taking care of valuable stock, who are careless of their own drinking supply water.

Myself and fellow practitioners in this community have endeavored to correct this condition and have made some improvement, but much is to be done yet.

Dr. J. J. McShane, State Department of Health, Springfield: The reason I rise to discuss this paper is that Dr. Mann made the suggestion that Dr. Beach's paper be printed so the laity may have access to the same.

We do not permit persons with certain communicable diseases at the present time to travel, except by authority of the Illinois Department of Public Health and on permission of the local health authorities of the jurisdiction from which and to which removal is desired. All authorized removals shall be effected by private conveyance and under the personal direction of a physician or medical health officer who shall exercise extreme care to prevent the spread of the disease, including disinfection of conveyance.

The Standard Railway Code permits persons with certain communicable diseases to travel by train, providing they comply with the rules of the Railway Code and rules of the State Department of Health relative to interstate travel.

Dr. Beach (closing discussion on his paper): The question has been asked as to how often water coolers are cleaned. I will say that Section 14 of the Standard Railway Sanitary Code directs that such tanks be cleaned every week and drained, cleaned and disinfected once each month. Streaming steam was used considerably but has of late been largely discontinued owing to the criticism that it was doubtful as to whether the steam in contact with the cold galvanized iron or block tin tanks exerted any great disinfecting effect. We are depending more upon thorough mechanical scrubbing and flushing with boiling water.

I wish to say that copies of the Standard Railway Sanitary Code can be readily obtained by any of you who are interested in its contents.

The preventive medical man of today must be a patient, persistent, hard-working chap who will not become discouraged by repeated rebuffs. Remember that you have the technical knowledge and must impart it to the man whom you wish to convert in the language which he will understand. This takes patience, repetition and smiling persistence. Do not make any statements which you cannot prove and make each such statement at least three times, using different language every time—one of these ought to "take."

I trust that no one will leave this convocation with the idea that the railroads are not doing their bit on sanitation, the great trouble is to get them all to "do their bit." I have the good fortune to be connected with a road which is keenly alive to the necessity and benefits of sanitary supervision, the Illinois Central having maintained a Sanitary Department since 1911, the Chief Surgeon being zealous in the line of preventive medicine. Some other roads do the same thing and it is to be hoped that in the near future all the railroads will be active in the performance of sanitary work.

FURTHER EXPERIENCES WITH DILUTE ALCOHOL NERVE BLOCKING ANESTHESIA IN TONSILLECTOMY*

ROBERT SONNENSCHN, M. D.,

CHICAGO

At the meeting of the American Laryngological, Rhinological and Otological Society at Atlantic City, May 10, 1923, I read a paper entitled "Alcohol Injections as a Possible Adjunct to Tonsillectomy under Local Anesthesia." We take the liberty of quoting sections of this paper and of giving the results of the further use of the method therein outlined.

The writer has always favored the use of a local anesthetic in tonsillectomies wherever it could possibly be used. Its advantage over general anesthesia seems to lie in several facts. First, there is either no nausea or if any, much less than with general anesthesia. Secondly, there is the avoidance of aspiration pneumonia. Third, the time of operation is usually considerably shortened as compared with a general anesthetic, particularly in adults. Fourth, there is usually less immediate discomfort in that the patient can take ice, fluids, etc. etc., shortly after the operation whereas with ether it is necessary to deprive the patient of these things for a considerable length of time. Fifth, there is the avoidance of the ill effect that ether or chloroform may have upon the general system, such as cardiac depression, nephritis or the induction of a coma in diabetes. Sixth, the swallowing of blood and the consequent vomiting are usually eliminated in that the patient is able under local anesthesia to expectorate the blood that accumulates in the throat.

We have employed local anesthesia in tonsillectomies for many years in practically all cases above the ages of fourteen or fifteen unless the individual was too apprehensive of the operation or the pharyngeal reflex uncontrollably active. No hypodermic was given before the operation unless the individual needed a sedative very much. We have often noted that when morphin was used, the patient was nauseated thereby and was likely to vomit while being anesthetized or during the operation.

During the past year, we have entirely omitted the use of any morphin or other sedative before the operation. Usually the patient is allowed to have a cup of strong hot coffee but no other preparation is made.

History of Technique: In 1909 Yankauer described a most excellent method of producing local anesthesia for tonsillectomy by blocking the posterior palatine nerves at their emergence from the posterior palatine foramina. He states:

The tonsils are supplied by the circumtonsillar plexus

*Read at the annual meeting of the Illinois State Medical Society, at Springfield, May 7, 1924.

derived below from the tonsillar branches of the glossopharyngeal, and above from the middle and posterior palatine nerves. The glossopharyngeal is the smallest of the cranial nerves and its tonsillar branches are small; it is, moreover, a nerve of special sense rather than a nerve of general sensation, and its tonsillar branches may for practical purposes be neglected. The middle and posterior palatine nerves are derived from Meckel's ganglion of the fifth nerve, which is the principal nerve of sensation for the entire head. These nerves leave the sphenopalatine fossa through the accessory posterior palatine foramina, two small openings in the posterior part of the hard palate at the junction of the alveolar process with the horizontal part of the bone. These two nerves supply not only the tonsil but the lateral pharyngeal wall. The two openings are very close together, but their location is not marked by any special landmark on the surface of the mucosa of the mouth so that the point for injection must be determined by arbitrary measures. There are two methods: first, if the last upper molar tooth is present, begin at the posterior end of the margin of the gum of the last molar tooth and measure upward one centimeter—that is, at right angles to the free border of the teeth, and then one centimeter backward. Second, if the last molar tooth is absent, we first determine the location of the tip of the hamular process by placing the finger upon the soft palate; the process can be distinctly felt as a sharp point of bone.

The writer tried this method a few times and then for one reason or another discontinued it until papers by John A. Thompson appeared in 1917 and 1920. He states that the "anterior surface of the tonsils is supplied with sensation by the posterior palatine nerve, a branch of the sphenopalatine ganglion. It emerges with a small artery from a separate opening immediately behind the posterior palatine foramen. The glossopharyngeal nerve also sends branches to the tonsils." Prof. Knower of the University of Cincinnati collaborated with Thompson and made sections of the neck at the level of the lower third of the tonsil showing the relation of the glossopharyngeal vessels and the tonsils.

The important structures which run through this region are surrounded by a loose connective tissue which is continuous from the pharyngeal wall outward and back in front of the deep prevertebral fascia, to surround the carotids, hypoglossus, superior sympathetic ganglion and plexus, vagus and glossopharyngeal nerves. In blocking nerves, it is not necessary to inject the nerve itself, since surface contact is all that is needed. The connective tissue noted by Knower permits us to surround the glossopharyngeal nerve with anesthetic solutions without any danger of injuring the other important structures mentioned. The injection can be made between the tonsils and the anterior pillar, penetrating the constrictor muscles and

pharyngeal fascia. A better route is external to the anterior pillar at the junction of the upper and middle third of the tonsil. At this point there is only mucous membrane to pierce and there is no danger of passing the needle through a deep tonsillar crypt as in the first method and of carrying infection into other tissues with serious results. At this level, the nerve trunk is three-quarters of an inch from the surface.

This plan we adopted with most excellent results and it has usually given us perfect anesthesia and as little bleeding as any other method we have ever attempted. We believe that the operative technique and bleeding are relative matters. Whether a sharp instrument, a dull ring or any other appliance is used, some cases bleed greatly and others very little. This seems to depend upon several factors, such as the anatomic peculiarities of the parts, like the presence of rather large veins in unusual places, etc., the direction in which vessels are severed, the clotting time of the individual, the depth in the tissues to which an incision is carried, etc.

Because of its toxicity, the writer has never used corain, even in weakest concentration, for submucous injections in the nose or throat. In nasal operations we have applied it topically in the form of flakes or ten per cent. solution together with adrenalin chloride. In tonsillec-tomies it was formerly used by us in very apprehensive patients or those with very marked pharyngeal reflex by simply applying a small amount on a swab to the mucosa of the pillars, the palate and the posterior pharyngeal wall, before injecting the apothesine or novocain, etc. During the past year, we have entirely discarded the use of cocaine for any application whatsoever in the throat preliminary to or during operation. In April, 1923, Dr. Ellison L. Ross read a paper before the Chicago Laryngological and Otological Society in which he showed that cocaine, even when applied locally, sensitizes the individual to adrenalin so that the blood pressure rises greatly when the latter is injected. This synergistic action produces an increase which is much greater than the combined increase of blood pressure produced by cocaine or adrenalin used separately. In view of this, caution should be observed in our anaesthesia routine. Dr. Ross stated that if adrenalin be first used, and then a pause of five or ten minutes made until the blood pressure effect has disappeared, the application of cocaine will not result in the greatly increased

blood pressure noted where cocaine is first applied.

Considering the good results reported by neurologists and surgeons in producing at least temporary relief from pain in cases of neuralgia by injecting with alcohol the nerves or their immediate vicinity, it was deemed worthy of a trial in tonsillectomy. This procedure was contemplated, not so much for procuring perfect anesthesia during the operation, since we already had that by means of nerve blocking with apothesisin and novocain, the technique of which we have described, but it was directed towards reducing or rather mitigating the very painful condition usually present for a number of days after the operation. There being no reference in the literature to guide us, the research department of Parke, Davis & Co. assured us that no chemical antagonism existed either between apothesisin or adrenalin or alcohol. Soon after the outbreak of the war, we began using apothesisin which was then first introduced by that firm; and we have used it in many hundreds of cases with very satisfactory results, that is with regard to the good anesthesia produced and the absence of untoward symptoms except a slight cyanosis on rare occasions noted shortly after the injection.

With reference to the effect of alcohol on the tissues, Otto May, after quoting Schlosser, Finkelnberg and others concludes that

1. Alcohol injected near the trunk of a peripheral nerve produces more or less complete necrosis at the point of injection.

2. This change is not ascending; the nerve above the place of injection remaining normal. The cells of origin (ganglion) may show some chromatolysis but no actual permanent injury.

3. The conditions produced by the injections are more favorable to regeneration than nerve sections without suture. The anatomic continuity of the nerve trunks favors rapid regeneration although this may be somewhat retarded by the fibrosis which occurs to a greater or less extent in all alcohol injections.

If alcohol was placed merely around the nerve, its effect, although marked, was transitory: the nerve quickly recovered its function (Quoted by G. Sluder). Probably the effect on the other tissues is also a local necrosis followed by a fibrosis. As to the systemic effect of alcohol, most pharmacologists agree that even in small doses the action on the central nervous system is quite pronounced. It gives rise to a feeling of well being as the individual becomes more

self confident and less shy. Large amounts blunt the sensations. With reference to its action on the circulatory system, small doses of alcohol slightly accelerate the pulse and stimulate the heart. The vessels are not much affected although there is peripheral vasodilatation. The blood pressure usually rises somewhat.

Technique: Various concentrations of alcohol were used by us, from 25 to 95 per cent. but it was found ultimately that from 25 to 33 per cent. apparently served best in giving the good effect without any marked reaction. During the past year we have used a technique which varies slightly from that mentioned in the original report. The patient is given nothing whatsoever except, as previously mentioned, a cup of strong hot coffee. No morphin or other sedative is administered, and no cocain whatsoever is applied to the throat. For injection purposes a metal or a glass syringe of from two to four centimeters capacity with a straight needle of about 21 gauge is used. To 15 c.c. of a one-half per cent. novocain or apothesisin solution, (whichever happens to be at hand) are added six drops of a one to one thousand adrenalin chloride solution. Then enough 95 per cent. alcohol is added to give a concentration of from 25 to 33 per cent. Lately we have omitted the adrenalin.

N.B. We found, however, in a few cases that the injection of the posterior palatine nerve involved also the motor supply of the soft palate and there was then three or four weeks of considerable paresis of the palate which was very uncomfortable and disconcerting to the patient. For that reason, we have modified the technique by injecting only the anesthetic solution as described above, about one-half to one c.c. in the region of each posterior palatine nerve internal to the last upper molar tooth. Then the alcohol is added to the remainder of the anesthetic solution and from four to six c.c. injected external to each tonsil into the areolar tissue at the level of the junction of the upper and middle third of the tonsils; a smaller amount, about one-half to one c.c. on the level with the lower third of the tonsils, but entirely external to it. A pause of 4 to 5 minutes is then made. Dissection with knife and snare was done in practically all of these operations which now number about 175 private cases and a very considerable number of ward cases.

Results Obtained. The anesthesia obtained by

the method outlined was very good. As previously stated, excellent results had already been obtained by the use of apothesine and novocain alone. However, our main purpose was to endeavor not only to have a good anesthesia during the operation but to have less post-operative pain the first two or three days. The advantages which we see from the addition of alcohol to the anesthetic solution are several. First, there was practically no toxic effort produced from the anesthetic. This may possibly be due to the fact that less anesthetic solution was used than otherwise would have been the case; one-quarter to one-third of the fluid injected consisting of alcohol. There was practically no syncope noted. The class of patients which the writer has to operate on included many very excitable and apprehensive individuals who ordinarily cause a surgeon much trouble in that they become very "nervous" or often "faint" or threaten to do so during the course of the operation itself. Since using the alcohol, however, we have no trouble from this source. Apparently there has seemed to be considerably less post-operative bleeding; hemorrhage is, however, a relative matter and does not seem to depend upon the method of operation but upon other factors previously mentioned. Fourth. During the first 24 to 72 hours, most of the patients seemed to have less discomfort than is usually observed. There were a few who complained very bitterly and others who had practically no pain at all. Reaction to pain is of course a relative matter depending upon the temperament of the individual.

In order to have a more nearly objective illustration of the effect of the alcohol injections, we took a series of consecutive and unselected cases, 25 in number, in whom the anesthetic solution only was injected into the right posterior palatine and the region of the right glossopharyngeal nerve, while alcohol was added to the solution injected into the 9th nerve on the left side. The patients did not know that there was any difference in the solution which was used on the two sides. These individuals were then asked one to several days after the operation whether there was any difference in discomfort between the two sides of the throat. Of the 25 patients, one stated that he had more pain on the side on which alcohol had been injected, one had very little pain on either side, one was very indefinite in her observation and the other 22 stated that

they had much less pain and discomfort on the side on which the alcohol had been used; in fact, a few said they had had absolutely no distress on the alcoholized side.

Therefore we feel that the addition of the alcohol to the anesthetic fluid presents a number of advantages, but we wish also to state the unpleasant features or disadvantages which we noted. In the first place, there was more pain at the time the injection was made when the alcohol was present in the anesthetic fluid than when it was not, but this pain lasts only for a very short time. After both sides have been injected it is our policy to wait from four to five minutes before beginning the operation and during this period the pain entirely disappears. Again there is the possibility of impaired mobility of the soft palate if any of the alcoholic solution is used in the region of the posterior palatine nerve. For this reason we have adopted the technique as above outlined of omitting the alcohol from the anesthetic solution as far as the posterior palatine nerves are concerned, injecting only into the region of the glossopharyngeal plexus with alcohol. In those cases, however, where there was a paresis of the soft palate following the use of alcohol in our earlier cases, the impaired mobility disappeared after three or four weeks. Let me state, however, and I believe that this will be corroborated by other operators who use only novocain or apothesine in nerve blocking that occasionally impaired motility of the soft palate has occurred for a short time, so that the alcohol alone cannot always be held responsible for it, although it is best omitted.

Conclusions: Local anesthesia in tonsillectomy seems to us preferable to general anesthesia in that it causes less nausea, less vomiting and less post operative discomfort. The operation is usually shorter than with a general anesthetic, and there is practically no danger of aspiration pneumonia. Furthermore, the systemic effects of ether, chloroform, etc., such as nephritis, cardiac depression and the induction of coma in diabetes are avoided.

The addition of alcohol to the anesthetic fluid seems to offer great advantages in that there is less toxicity, less syncope and less postoperative discomfort and bleeding, which we believe far outweigh the transitory unpleasant symptoms, such as the sharp pain at the time of injection, or the possibility of temporary interference with

the mobility of the soft palate. Where the alcohol is omitted from that portion of the solution injected in the region of the posterior palatine nerve and added only to that which is used in the region of the glossopharyngeal plexus, all the beneficial effects are obtained without any interference with the soft palate.

Since the reading of the original paper, our experience with this method has been considerably broadened and we feel that with the slight modification which we have introduced, our results have been most satisfactory indeed.

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DISCUSSION

DR. HARRY KAHN, Chicago Dr. Sonnenschein's paper covered the subject so well that there is hardly any room for discussion. I have seen him do twenty-five or thirty, I think, I don't know how many of these cases, and I have done a few myself and I have watched these cases rather carefully.

His method seems to take in the ideal local anesthetic. That is, that it should be non-toxic. It should give no reaction *per se* from the injection. It should have no aftereffects. And that it should cause a good analgesia of the parts affected.

Now these things have occurred, and, furthermore, I think in this method we have, in addition, a secondary analgesia in the tonsillar fossa, with less symptoms afterwards.

In the method I have been using up to this time, it has been the injection of 2 per cent. of apothecin, to which 10 drops of adrenalin has been added to 4 drams of 15 c.c., and I have injected the pillars; on the second day or the day after the operation, I have always had a very profound pain. I think that has been the experience of most men in local anesthesia.

With Dr. Sonnenschein's method, we find this does not occur, but there seems to be a straight healing and a more comfortable feeling and not so much discomfort.

So that I think the method, as I have seen it used, and I have used it a few times, is the ideal thing to have in tonsillectomy. This is like the writing of books. There is no end. There is always something

new. Somebody always has something else. Probably next year somebody will have another method. But this year I think this will be the fashion, and especially since we have the alcohol, I think with Dr. Sonnenschein's great number of cases, it is the little dose of "booze" that he gave them, and, if the prohibition agent doesn't get him, I think he will get along and have a tremendous tonsil practice. I am opening a competition shop, and I hope to steal the drippings from Sonnenschein's anesthesia methods.

IMPORTANCE OF EARLY TREATMENT OF EPITHELIOMA ABOUT THE ORBIT*

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Any one having the opportunity of observing a large number of cases of cancer of the skin, such as occur in a clinic like that of the Barnard Free Skin and Cancer Hospital, will be struck with the relative frequency and insidiousness of cancer of the orbit. This paper is therefore written to call attention to this fact.

A large majority of the epitheliomata of this region are of the basal cell variety, that is, they are composed of cells having the appearance of those which occur in the basal layer of the rete Malpighii and may be due to cell rests from infolding during embryonic life as Bowman has so beautifully demonstrated. This type of cancer does not metastasize like those composed of cells of the prickle cell variety.

We cannot give statistical data in relation to the microscopical findings in the cases included in this report, as it is not our custom, in the Barnard Free Skin and Cancer Hospital, to excise a section for microscopical diagnosis in such cases. Such a procedure is considered, by the best authorities, to be dangerous, for fear of opening a vessel to the cancer process or the stimulation of its growth. All operations for cancer, unless very thoroughly performed, cutting wide of the cancerous area, or unless a cautery knife be used, may open up lymphatic and blood channels for local metastasis. Any operative procedure whether it be done with the knife, cautery, or with the knife-cautery, acid, radio therapy, or no matter what the agent used, unless it thoroughly eradicates all the cancerous tissue will

*From the Dermatological Department of the Barnard Free Skin & Cancer Hospital.

prove an irritant and stimulant to those cells remaining. Therefore, statistics as to the microscopical nature of cancer of the skin is very interesting to obtain but dangerous to the patient.



Fig. 1.

A, B, C—Basal celled cancer in various stages of development. Cases 1, 2 and 3.

However, an experienced eye can generally detect basal-celled cancer and differentiate them from the more virulent prickly or squamous cell variety.

In no portion of the face is the basal cell cancer more dangerous than about the orbit.

Rapid local extension is the rule after growth has begun to crust or ulcerate, and when this occurs extension to the orbital cavity usually follows rapidly. This unfortunate event most frequently occurs about the inner and outer canthi. In our clinical experience we have often noticed how rapidly these growths extend to either canthus even though situated two or three centimeters away, probably due to the anatomical situation of the lesions in regard to the lymph drain in this region. The cells of the tumors so situa-

ted reach the lymphatic drain and are propelled by the inward flow of lymph toward the canthi, where they rapidly increase in size through proliferation of their cells and land in and near the canthi with a greatly accelerated and increased stimulus of growth.

Ulceration and extension, in this region more than any other, are increased or stimulated by the application of irritants such as those recommended by friends and relatives of the patient or by ignorant physicians or quack doctors. It is extremely rare, in dispensary and even in private practise, to observe the very early or initial appearance of these growths about the orbit. When these patients appear for consultation, the disease is usually advanced, generally due to the irritating effects of various remedies that have been recommended to the patient as above mentioned. In this region, as in all others affected with cancer, the fundamental law holds, that inadequate



Fig. 2.

A, B, C—Basal celled cancer (Rodent Nodule) about the eye. Cases 4, 6 and 8.

salves and pastes, inadequate cauterization, inadequate surgical procedures, or inadequate x-ray or radium therapy, merely increases the growth and malignancy of the cancer cells.

No treatment is indicated in cancer unless it be of sufficient intensity or thoroughness to des-

troy all of the cells composing the growth, which is obviously far less destructive and deforming when the growth is first seen by the patient than

than it does upon the skin, due, no doubt, to the succulent open lymph drains of the part.

Frequently the degree of involvement along the wall of the orbit cannot be discerned from the clinical appearance about the external surface of the skin or in the region of the canthi. The examining finger can, however, frequently detect marked infiltration and induration upon the wall of the orbit by deep palpation of the region affected, when such involvement has occur-



Fig. 3.

A—Advanced basal celled cancer of lid and orbit.

B—Enucleation of eye and apparent cure by radium. Case 5.

after it has been irritated and extended by inadequate or quackish therapy.

When basal cell cancer once reaches the region in or about either of the canthi or conjunctiva, the inner or outer wall of the orbital cavity, whichever it may be, is always invaded. When this occurs the ultimate cure of the condition is very seldom accomplished without the complete



Fig. 4.

A—Basal-celled cancer of upper lid.

B—Cured by radium. Case 7.



Fig. 5.

A, B, C—Types of basal-celled cancer of lids. Cases 9, 11 and 13.

red, in which instance enucleation of the eye becomes an unfortunate necessity.

In the treatment of those cases where the cancerous process had burrowed and hidden itself along the outer or inner wall of the orbit, we have repeatedly tried to reach it and destroy it by burying tubes of radium in this region without, however, very encouraging results. In an attempt to save the eye in some of these cases, the actual cautery has been used, in several instances, to bore holes deep into the tissues about this region to act as a bed for the reception of a 25 milligram

enucleation of the eye, owing to the fact that marginal proliferation of the process extends more rapidly in the tissue of the regions of the canthi

tube of radium, allowing the radium to rest in this bed a sufficient number of milligram hours to destroy the growth. This procedure, however,

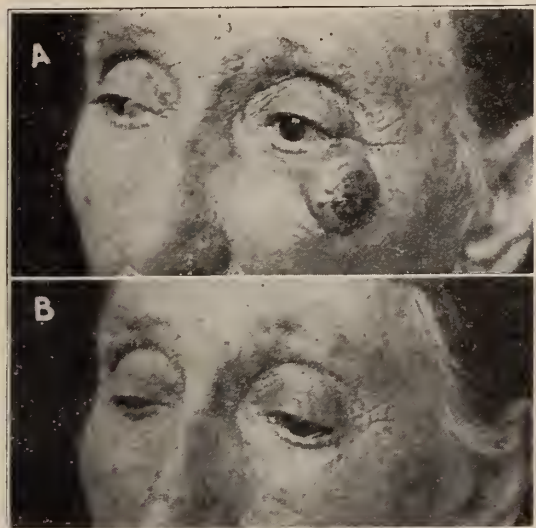


Fig. 6.

A—Large rodent nodule near left eye.
B—After radium treatment. Case 10.

has only in a relatively few instances produced encouraging results, and, it has in most cases, where such involvement has occurred, been ultimately necessary to clean out the orbital cavity.

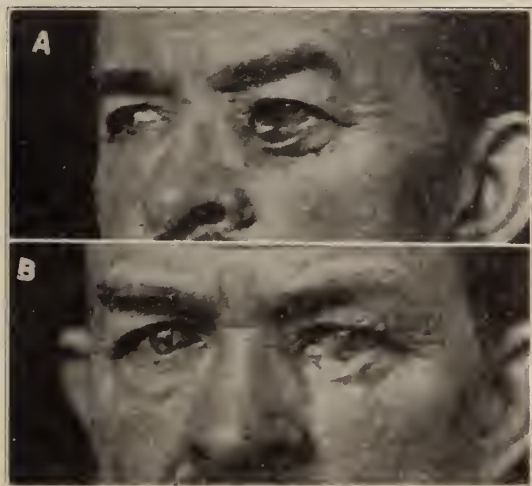


Fig. 7.

A—Dangerous basal-celled cancer of lower lid.
B—Apparent cure by radium. Case 12.

For comparative statistical study we have gone over the records, of the Barnard Free Skin and Cancer Hospital for the last fifteen years to study the relative frequency of cancer about the orbit, with the following statistical results: Out of a

total number of 3,172 cancer cases entering the hospital from 1905 to January 1921, 980 or 34.69% of them were of the face; of the 980 cancers of the face 10% occurred about the eye, that is, upon the upper or lower lids, or about the inner or outer canthus, or near the eye upon the temple. It is curious to note that out of 67 cases of cancer of the temple 16 or 23.8% finally invaded the orbit. It is also of interest to note that of the 95 occurring about the eye their location was as follows:

Right upper lid.....	7 or 7.3%
Left upper lid.....	7 or 7.3%
Left lower lid.....	18 or 18.9%
Right lower lid.....	21 or 22.1%
Right inner canthus.....	12 or 12.6%
Left inner canthus.....	12 or 12.6%
Right outer canthus.....	8 or 8.4%
Left outer canthus.....	4 or 4.2%
Right orbit.....	3 or 3.1%
Left orbit.....	3 or 3.1%

Of the 980 cancers occurring about the orbit their relative frequency of location was as follows:

Forehead	38 or 3.8%
Temple	68 or 6.8%
Nose	268 or 26.9%
Cheek	117 or 11.9%
Lips	392 or 40 %
Eye-lids	95 or 9.6%
Multiple cancer of face.....	7 or .71%

The figures given differ somewhat from others in that the percentage of face cancer is considerably higher. Broder for instance, compiling statistics upon a similar subject at the Mayo Clinic, gives the following percentage in similar locations:

Temporal	4.1 %
Canthi	4.85%
Forehead	8.71%
Upper and lower lids.....	20.52%
Nose	19.02%
Upper lip.....	2.98%
Cheek	23.5%
Lower lip.....	1.11%
Chin	1.49%

In illustrating the point to be emphasized in this paper; namely, the danger of cancer about the orbit, we submit photographs and brief histories of a few illustrative cases from the records of the Barnard Free Skin and Cancer Hospital.

Case 1. (O. R.) Aged 46. Male.

Present condition began about two years ago as a small tumor under skin of left upper lid. Tumor mass

seemed to involve the whole of the upper lid until a few months ago when the general rapid extension began. Upon first consultation, the middle and inner parts of the upper and lower lid were ulcerated with



Fig. 8.

A—Basal-celled cancer near inner canthus.
B—Cure by radium. Case 14.

marked involvement of the eye and inner wall of the orbit. The eye was enucleated and showed a marked involvement of all of that region. (Surgery.) Impossible to remove all of the tumor.

Case 2. (J. B.) Aged 70. Male.

Began as a roughening of the right side of the nose. The crust formed came off several times. It began to spread lately and at the present it involves the region under the eyelid and the conjunctiva. This case finally dropped out of sight but there was undoubtedly involvement as in all cases of the conjunctiva and the inner canthus. Improved under radium treatment.

Case 3. (A. R.) Aged 39. Male.

This case is typical of the others, starting with an involvement of the lower lid, near the inner canthus, which soon formed an ulcer that extended rapidly outward. Paste was used upon it by some quack with rapid recurrence and involvement which eventually involved the eye and travelled inward from the inner and outer canthus, involving the conjunctiva of the eyeball and the lids into a solid cancerous mass, necessitating the removal of the eye.

Case 4. (E. G.) Aged 73. Female.

It is curious in this case that the patient gives the history of the mother having had a similar condition in the same location which was treated with plaster. The patient's trouble began as a small wart about eight or nine years ago, near the inner canthus of the left eye. When seen, the patient presented a small cherry sized tumor which had a peculiar raspberry appearance.

Case 5. (M. M.) Aged 61. Female.

Began on lower lid left side, 20 years ago. It seemed to disappear several times, and then reappear.

This was treated in usual way, until the eye and lids of that side became involved; cornea was clouded and there was an exuding tumor mass jutting out from the lower segment of the eye region which necessitated the removal of the eye. Patient seemed to have clinical cure and was under observation for a year or more. Surgery only. Discharged, apparently cured.

Case 6. (W. P.) Aged 69. Female.

About two years ago, disease began as small pimple near outer canthus of left eye, which recently has begun to grow larger and ulcerate. The outer canthus of the eye and the outer wall of the orbit is involved with a portion of the conjunctiva of the eye ball. The ulcer itself shows a hard rolled border. The base is necrotic. This was treated with x-ray with an improvement of the outer portion of the growth. However, 14 months after treatment, the lesions seemed to be symptomatically cured.

Case 7. (E. W.) Aged 73. Male.

This man has an epithelioma that began upon the upper lid of the right eye near the inner canthus, and showed some involvement of the conjunctiva with infection of the eye ball. He was treated with radium and clinically cured.

Case 8. (J. G.) Aged 45. Male.

Has a fistulous track which digs down through outer canthus of right eye, with a cancerous infiltration, along this track starting from a small lesion of the outer canthus. Under anesthesia, the fistulous track was excised and the eye-ball was enucleated and the



Fig. 9.

A—Basal-celled cancer of lower lid.
B—After radium. Case 15.

orbit cleaned out and cauterized. Later, there was a recurrence.

Case 9. (W. E.) Aged 65. Male.

Began about six months ago as style-like lesion. Applied peroxide up to time of appearing at clinic. Began to ulcerate three months ago. When he appeared

for treatment, he presented an ulcer from six to eight m.m. in length which has eroded $\frac{1}{2}$ m.m. deep, involving the margin of the lower lid and eye. Induration extends from outer canthus to within 6 m.m. of the inner canthus. It projects somewhat outward with

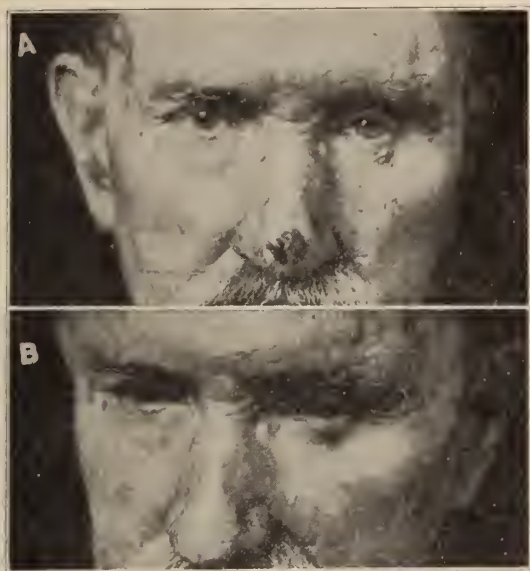


Fig. 10.

A—Typical rodent nodule near left eye. Another on nose.

B—After radium treatment. Case 16.

small involvement of the conjunctival surface. Growth was seemingly destroyed, except a small suspicious part, by radium last June.

Case 10. (E. D.) Aged 67. Female. Duration 40 years.

This patient shows carcinoma on cheek but it was treated early enough by operation to prevent its extension into the eye. Surgery and radium, cautery and x-ray.

Case 11. (D. F.) Aged 63. Male.

Fourteen years ago patient noticed small rough scab on right lower lid, near inner canthus, which could be picked off to recur. Various applications were applied on it that the laity use, especially farmers. Then he was given a paste by a neighbor. After application of paste, the lesion healed, but it recurred in two years. Then he was treated by a quack who guaranteed a cure, but again it recurred. He has had a varied medical career with quacks and neighbors until he appeared in our clinic, September, 1916. At that time, at the inner canthus of the eye, involving the lower lid, was a deep ulcer at least 1 cm. in length. It has involved the tear duct and inner canthus and most of the lower lid with some involvement of the conjunctiva. It has also spread inward on to the nose. Involvement of the canthus and the inner wall of the orbit necessitated enucleation of the eye. (Surgery.) Discharged apparently cured. Adequate early treatment would have saved the eye.

Case 12. (C. R.) Aged 50. Male.

Lesion began 7 years ago as a pimple on lower left lid near inner canthus. Lesion was burnt with acid 4 years ago but recurred. The tumor mass, at patient's appearance at clinic, involved the lower lid which is everted; conjunctiva is also involved. There is no evidence of involvement of the orbit. Patient was treated with radium and was reported apparently cured last visit in September. First application of radium was applied in November, 1919. (Radium.) Apparently cured.

Case 13. (O. K.) Aged 54. Male.

The lesion is situated 1 cm. distance from lower lid, elevated, with bleeding surface; is typical of basal-celled carcinoma with hard everted borders about 8 mm. in diameter. Apparently cured with cautery. It is to be noted that in this case the disease began some distance from the margin of the lid, really at the lowermost edge of the lid. Cautery-cured. No deformity.

Case 14. (C. M.) Aged 53. Male.

On the nose, about 8 mm. from the inner canthus of the left side is an epithelioma about 1 cm. in length, 7 mm. in width, which was far enough away from the eye and had not been irritated by former treatments. Healed under application of radium.

Case 15. (W. H.) Aged 55. Male.

There began just below the margin of the lid but on the outer surface, a nodule, about 11 years ago; was not irritated by various applications and therefore had



Fig. 11.

A—Basal-celled cancer on lower lid.

B—Cured by radium. Case 17.

not approached the dangerous marginal surface of the lid and was symptomatically cured by radium.

Case 16. (T. O.) Aged 65. Male.

The patient presented two basal-celled cancers: one on the end of the nose which began 10 years ago and

did not decrease very rapidly in size in spite of numerous applications. It is 14x12 mm. in size with a raised border. Under the left eye, far enough away from the margin of the lip to be passably safe, is a basal-celled nodule mm. in diameter, which has existed for 18 months. Both of these lesions were rapidly cured with radium.

Case 17. (J. M.) Aged 52. Male.

This ulcer on the lower lid was not markedly infiltrated but seemed to present some suspicious con-



Fig. 12.

A—Nodular type of basal-celled cancer of upper lid.

B—Cured by radium. Case 18.

dition along the inner portion of the conjunctiva. All the lesions were clinically cured with radium.

Case 18. (J. H.) Aged 71. Male.

About 18 years ago, while working in a bottle factory, was struck on the eye-lid. The lesion healed, but six years afterward, he noticed a small lump which increased in size and has been in its present condition for 1½ years. It is situated on the left upper lid, occupying almost the whole surface and is a basal-celled type cancer. It is 2½ cm. by 1½ cm. in size, somewhat lobulated and nodular. This had not been irritated by various treatments and in the upper lid the lesions do not seem to have tendency to spread into the orbit as virulently as in the lower lid. This case was readily cured by radium.

The purport of this communication is to illustrate the clinical appearances of these growths about the orbit, their early characteristics, their danger and the importance of proper and adequate treatment in their early growth and the extreme danger of ignorant and inadequate treatment.

Wall Bldg.

THE SURGICAL TREATMENT OF ANGINA PECTORIS*

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WINNETKA, ILL.

Rather than advocate the surgical treatment of angina pectoris, it is my purpose in this paper to lay before you what has been done in this field and permit you to judge for yourselves whether or not the operation should be advised for sufferers from angina pectoris and whether or not there is sufficient encouragement in the work already done to warrant further study and investigation.

From the lofty heights of eminence disquieting advice has been given us. Very recently Sir James Mackenzie¹ has said, "I do not suppose there is a surgeon who would even pretend to understand the morbid conditions which give rise to the symptom complex called angina pectoris. The knowledge of the functions of the vagus and the sympathetic which the surgeon cuts is so imperfect that neither he nor the physician who advises him understands but a fraction of the functions of these nerves." * * * "The employment of such drastic treatment as a surgical operation for a condition so little known does not redound to the credit of medicine." Mackenzie believes that mere pain is in itself not a dangerous symptom and that it is a valuable indicator, to remove which in the present state of our knowledge is extremely hazardous and bad practice. Unless the surgeon has a full knowledge of the function of the structures he cuts, there should be no operation. It is to be wondered if these sane and logical views of Mackenzie would be tempered were he a John Hunter, a Charcot, a Nothnagel, or a William Pepper, all of whom suffered from and died of angina pectoris; if he might not welcome an operation which offered even a fair hope of delivering him from his subjective durance, even were that operation not perfectly understood.

The relief of suffering, irrespective of efforts to cure, often commands the thought and effort of physicians and surgeons. It is frequently necessary to employ morphine to control attacks of excruciating pain even if we are unable to remedy the cause or even understand it. A step

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further is the humane work of Dyas² who performed alcohol injections or nerve resections of the brachial plexus in incurable cases, such as sarcoma of the humerus, and carcinoma of the breast. An early operative mortality of 50 per cent did not deter patients from submitting to and physicians advising the removal of the Gasserian ganglion in trigeminal neuralgia.

Had no other case but Bacon's³ been reported, the propriety of the interest in the surgical treatment of some cases of angina pectoris would be vindicated. Bacon's patient, "after weeks in bed was receiving the equivalent of 1/100 grain of nitroglycerin under his tongue, by a trained nurse, every fifteen minutes night and day whether sleeping or waking, from fifteen to twenty-five pearls of amyl-nitrate during the twenty-four hours; 2 grains of sodium nitrate and 1/4 grain of morphin every three hours. In spite of this heroic dosage, he suffered eight severe attacks in six hours, during which the family thought the patient was dying and had the last sacraments of the church administered. Mild seizures lasted about five minutes, while severe ones might last for thirty minutes and be followed by a second attack if the nitrite were withheld for more than 15 minutes." During the attacks of crushing, agonizing pain the patient frequently got out of bed, lay prone on his face on the floor, giving vent to slow expiratory grunts. Bacon excised the left superior cervical ganglion under local anesthesia. Following this operation there was a complete relief from all severe symptoms. Five months after the operation the patient had gained 26 pounds. He frequently slept six hours at a stretch and ate of everything. He often walked two to three miles without resting without discomfort. But perhaps this operation should never have been done because the exact mechanism of the relief was not understood!

To venture into a discussion of what are the pathological anatomy and pathological physiology which explain the attacks of angina pectoris requires temerity for a surgeon. The schools of thought in this matter may be grouped as follows:

I. *Angina pectoris associated with pathology of the heart and aorta.*

1. Sir Clifford Allbutt⁴ and more recently Wenckebach⁴ have placed the emphasis on disease

of the proximal aorta; angina pectoris being a sort of "aortalgia."

2. Embolism of the coronary arteries is the cause of a small percentage of the cases of angina pectoris.

3. Sclerosis of the coronary arteries and vasomotor spasm of the coronaries have been suggested to explain the anginal attacks but the evidence in favor of these hypotheses is far from perfect.

4. Sir James Mackenzie stresses cardiac failure and exhaustion.

5. Professor Danielopolu of Bucharest⁵ feels that angina is related to intoxication of the myocardium by fatigue products incompletely eliminated.

II. *Angina pectoris unassociated with pathology of the heart and aorta.*

On the other hand, angina pectoris may be divided from the therapeutic point of view into the three classes described by Sir Clifford Allbutt⁶:

1. The high pressure cases, which can often be relieved by reduction of arterial pressure.

2. The syphilitic cases, which are many and are curable as a rule by specific treatment.

3. The ordinary cases in elderly people, remedial by absolute rest—or operation.

In such cases then where all other methods have failed and where the life of the patient has become almost insufferable operation is to be thought of.

At the outset it must be emphasized that the rationale of the surgical treatment of angina pectoris is *not* to remedy the underlying pathology but to interrupt the painful afferent impulses between their origin in the pathological tissues and the central nervous system. It is not impossible, however, that interruption of the pathological afferent impulses will protect the heart and blood vessels from the damaging effects of the efferent impulses thus excited (Danielopolu⁴).

By what route do these impulses travel? Again, a controversy is precipitated. It is more difficult to determine experimentally the afferent or centripetal nerves of viscera than the efferent or centrifugal ones. The latter may be stimulated and the peripheral response noted. There may be no way of noting response to stimulation of an afferent nerve. Moreover, the *character* of the stimulus may have a great deal to do with the

character of reaction in the central nervous system. Mackenzie¹ remarks that "it would be as reasonable to investigate sight by cutting off the eyeball and stimulating the stump of the optic nerve as to investigate the function of an afferent nerve by cutting it and stimulating the stump." He believes that there is practically nothing known of the afferent nerves of the heart.

On the other hand, Wenckebach² maintains that it has been known for a long time that the depressor branch of the vagus is the principal afferent nerve of the proximal aorta.

This nerve runs from its origin in the proximal part of the aorta to its upper termination in a group of cells contained in the jugular ganglion of the vagal trunk. There are numerous communications between the depressor nerve and the branches of the cervical sympathetic system^{7, 8, 9}, and these communications would account for afferent impulses from the aorta being conducted by sympathetic tracts as well as via the vagus to the spinal cord. Grossly, the depressor nerve originates in two roots; one from splitting off from the main trunk of the vagus and the other from the superior laryngeal nerve. The united strand runs free for a stretch and then enters the vagus. If the aortic wall be distended by high blood pressure this nerve will lower the blood pressure and relieve the strain on the aortic wall. If the depressor nerve be cut and the central end stimulated, blood pressure is lowered. The stimulus is passed centripetally to the medulla oblongata and excites vasodilatation and inhibits the vasomotor center and the accelerator nerve of the heart¹⁰. As far as it has been possible to tell, the depressor nerve has its distribution confined to the proximal part of the aorta and has never been seen to extend to the heart⁴. The depressor nerve is in all probability the only sensory nerve of the aorta. Another effect of stimulating the depressor nerve is the slowing of respiration⁴.

As was noted above, fibers from the depressor nerve run to the cervical sympathetic, and in consequence the latter chain of ganglia constitute another point of attack of the afferent pathway. Resection of the cervical sympathetic for relief of the pain in angina pectoris was first suggested by Francois Frank¹¹ in 1899 but was not attempted until 1916 when Professor Jonnesco of Bucharest successfully operated on a case. By this operation the afferent fibers from the cardio-

aortic plexus are interrupted in their route to the medullary and brain centers.

Jonnesco and the other advocates of cervical sympathectomy removed the three cervical and first thoracic ganglions on one or both sides. The chief objection to this method is that in addition to interrupting the cardio-aortic sensory paths numerous other efferent and afferent pathways are interrupted. It is as if one were to cut through a cable to sever one strand of wire. In consequence of this, cervical sympathectomy constantly has certain undesired sequelae, as myosis, enophthalmos, increased lacrimal secretion, diminished intraocular tension, etc., and possibly occasionally severe sensory changes (to be mentioned below) a diminution in size of the homolateral cerebral hemisphere¹², etc.

Other surgical procedures are to be mentioned, mere division of the cervical sympathetic trunk which obtained some good results in the hands of Coffey and Brown¹¹; Brüning did a periarterial sympathectomy of the carotid¹² with betterment to the patient; and Danielopolu and Hristide¹³ observed that anesthetization of the second and third left spinal nerves stopped attacks of angina pectoris, and proposed the resection of the roots of the nerves corresponding to the pains in this condition, that is from the eighth cervical to the fourth dorsal.

In carrying out the operation on the depressor nerve Borchard¹² tells us that the landmark is the superior laryngeal nerve which branches off of the vagus at about the level of the lobe of the ear. The incision is on the anterior border of the sternocleidomastoid and all pressure on the great vessels is to be avoided because of the likelihood of circulatory disturbances in the brain. The vagus and the superior laryngeal nerves should not be disturbed in order to avoid vomiting (vagus) and anesthesia of the larynx (N. laryn. sup.) which could lead to an aspiration pneumonia. The vessel sheath must be laid quite free in order to recognize the depressor fibres running from mediastinum to the vagus. If the depressor nerve is not found Kopsch advises cutting through the entire tissue of the prevertebral fascia and even total unilateral section of the vagus nerve has been recommended¹¹.

Jonnesco¹⁴ has given us explicit directions as to the steps in the total resection of the cervico-thoracic ganglions. He uses the incision along the posterior border of the sternocleidomastoid

and retracts the skin, sternomastoid, and neurovascular bundle aside exposing the sympathetic trunk resting on the vertebral plane. The incision at the anterior border of the sternomastoid has been more employed in this country.

Henry¹⁵ believes a better method of removing the cervico-dorsal sympathetic is to approach from behind by means of a resection of the second rib.

Eppinger and Hofer¹⁶ have operated upon the depressor nerve in five cases; Wenkebach⁴ believes the operation has been done in 14 cases up to May of this year. In some of the cases, and particularly on the right side, a clearly differentiated depressor nerve could not be made out. But in every case where a definite depressor nerve could be found the pain disappeared at once on the side operated on and the success was generally enduring. In one case after cessation of pain there was sudden death without obvious cause in ten days. There was death in another case because of injury to the superior laryngeal nerve. Perhaps one of the chief perils of this operation is the liability of injury to the superior laryngeal nerve which may cause an anesthesia of the larynx which in turn may lead to an aspiration pneumonia. In Borchard's case¹² in which both the depressor nerve and the sympathetic were sectioned the patient died on the 22nd day postoperative with a mental disturbance.

Sénèque¹⁷ collected 18 cervical sympathectomies for angina pectoris and since then there have been at least nine more cases^{18, 19, 20, 21, 22}, making 27 in all. The majority of these cases were successful in affording the patients marked relief of their symptoms. Five of these patients died in the days following the operation. Of these deaths, Reid's²⁰ is of especial interest. "For fourteen days after the operation the result was almost miraculous. The precordial distress and pain were entirely relieved. The cyanosis disappeared. The wound healed promptly. He had been up and around the ward for five days when without any pain or precordial distress he suddenly died."

The immediate collateral results of Jonnesco's operation²³ are (a) extreme diminution of the left palpebral fissure; (b) extreme diminution and fixity of the left pupil; (c) retrocession of the left eye in the orbit. These cause a facial asymmetry due to the sunken eyeball and the contracted pupil.

In Smith and McClure's first case²¹ there

was the curious complication of priapism after a left cervical sympathectomy, which operation had but partly mitigated the anginal attacks. A right sympathectomy was done two months after the first operation, and following this the priapism did not occur and the anginal attacks became much less frequent and less severe.

In Reid and Friedlander's first case²⁰ there was still a further unusual complication which was made the subject of a special report by Reid and Eckstein²⁴. This patient developed pain that simulated trifacial neuralgia and there occurred marked sensory changes in the entire left half of the body from the head to the costal margin.

Jonnesco has done cervical sympathectomy in over 200 cases and has not been able to discover any ill effects on the heart.

CONCLUSIONS

1. Though there is much lacking in our knowledge of the morbid anatomy and pathological physiology of angina pectoris, and though *modus operandi* of the surgical treatment of this disease is not well understood there has been more than ample encouragement in the work already done to warrant further trial and study of this form of treatment.

2. The cases which should be submitted to operation are those which have neither high blood pressure nor syphilis and are elderly people whom rest has not benefitted (Allbutt's class 3).

3. The correct operation on theoretical grounds is section of the depressor nerve but this operation is both difficult and fraught with no little peril.

4. The most practical and advisable operation is the complete removal of the three cervical and the first thoracic sympathetic ganglions after the method of Jonnesco. Operation on the left side only is to be done first and on the right side later if necessary.

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DISCUSSION

DR. ALLEN B. KANAVEL: In the first place we could not have had a better presentation, and a more sane, sensible suggestion for the surgical treatment of angina than Dr. Christopher has given. The surgery of the sympathetic nervous system opens a wide field and draws attention to the fact that such surgery is something that is of a great deal of importance in every branch of medicine. Anatomists, physiologists, internists and surgeons will be interested in the relation of the surgical sympathetic lesions because of the fact that they know nothing of the afferent fibers. Whatever evidence there is that would suggest that possibly those fibers come up from the cardium, the relations of the anatomy of the nerves are poorly understood. In many cadavers it is almost impossible to find them. It is another thing in which anatomists should be interested and must be interested. The relation of the physiologist has already been dwelt upon and the relation of the medical case has been suggested by Dr. Christopher.

When it comes to the surgical phase of the question, as you know I have had some considerable experience with the removal of the cervical sympathetic. I have not yet seen any patient in whom I think there has been any ill effect upon the lung and heart from surgical sympathectomy. As to the ill effect mentioned by Dr. Christopher, they are surely little as compared with the terrible pain. That there is relief there can be no doubt. If this pain can be relieved, there is no doubt that this is the thing to do. There are cases reported in which cervical sympathectomy has been done and no relief obtained. It is certainly justified in certain cases. I would suggest that in giving a prognosis from cervical sympathectomy the dangerous symptoms should be mentioned. This operation should not be suggested in the mild types. On the other hand, in the severe types it is a procedure worthy of investigation and a fair proportion of the cases operated upon have been relieved for some considerable period of time.

As far as the operation is concerned, we have reasonable justification for the belief that cutting off the

afferent branch alone will not give as much relief as cutting the whole cervical sympathetic system. I believe further investigation from an anatomic, physiologic and surgical standpoint should be carried on in the cardiac branch rather than in the deep cervical sympathetic. That would avoid any permanent involvement of the eye though temporary involvement does occur. The operation can be done under local without any difficulty and without any danger to the patient. It is somewhat more difficult to find the posterior trunk than it is to locate the superior sympathetic. There can be no serious objection to the complete removal of the cervical sympathetic if it be found that removal is necessary to the health of the patient. It would seem to me at the present time in severe cases we are certainly justified in performing the operation.

THE EYELASHES SIGN

B. LEMCHEN, M. D.,

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While there are many signs that will differentiate the organic from the functional nervous diseases like the Babinski, Oppenheimer, Gordon and Chaddock's, still such a simple sign as mine is worth reporting as nowadays there are so many accidents where it is imperative to tell whether or not we are dealing in comatose patients with organic or functional cases. The sign is simple. In comatose patients on touching the eyelashes in functional diseases like hysteria, catatonia and epilepsy there is a winking-like movement of the eyelids—while in organic brain diseases like cerebral hemorrhage, severe trauma, unconsciousness following convulsions in paresis and in one skull fracture that I have witnessed no such winking took place.

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SURGERY OF THE LOWER URINARY TRACT*

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Were it not for modern methods of urologic diagnosis by means of cystoscopy, ureteral catheterization, pyelography, and the perfection of comparatively simple renal functional tests, the early recognition of organic disease of the urinary tract and successful surgical treatment would not be possible. Lesions formerly seen only at necropsy are now recognized clinically. In the hands of those experienced in the use of these methods, the diagnosis of surgical lesions of the

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urinary tract has approached an exact science, obviating the untrustworthy interpretation of urinalysis, and decreasing to a minimum the necessity of diagnostic exploration. As a result, the mortality rate in this field of surgery has been reduced to that of general surgery. These diagnostic methods have also led indirectly to nonsurgical remedial procedures, such as catheter manipulation for removal of ureteral stones, fulguration of bladder tumors, application of radium to bladder tumors, and so forth.

By virtue of the anatomic position of the kidney and ureter and relative ease of approach, the principles of exposure, visualized conduct of the operation, and hemostasis as applied elsewhere in the body, have been carried out, and therefore, results of renal surgery have always been comparable to those of general surgery. The bladder, however, while an extraperitoneal structure, situated in the pelvis behind the pubic arch and, in most instances, covered anteriorly by the reflected peritoneum, has been surgically approached with unusual lack of temerity in the application of those principles of exposure, accurate visualized conduct of the operation, hemostasis, and so forth. Failure to obtain adequate exposure and operating in the dark have served to mystify the surgery of this organ. Inaccurate operations, with consequent poor function, have often resulted. Moreover, failure to employ methods of hemostasis has in the past been responsible for a relatively high mortality from hemorrhage. Recent advance in the surgery of the bladder has enabled adequate exposure for visualized conduct of the operation and the application of accurate methods of hemostasis; accordingly, the functional results have improved and the mortality rate has been reduced to a minimum. The evolution of surgery of the bladder was first from the simple perineal or suprapubic cystotomy for retention of urine, and the removal of vesical stone, to the removal of the obstructing median lobe of the hypertrophied prostate gland. Subsequently it has developed further, coincident with the development of surgery of the prostate.

SURGERY OF THE PROSTATE GLAND

The diseases of the prostate gland requiring surgical intervention are benign and malignant hypertrophy. Approximately 85 per cent. of the obstructing enlargements of the gland are

benign, 90 per cent. of which are the result of adenomatous hypertrophy, and 10 per cent., of the inflammatory type. Of the 15 per cent. malignant lesions of the gland, carcinoma is the most common; sarcoma and lymphosarcoma are exceedingly rare.

Surgery has seldom been productive of permanent good results in these cases. Bumpus, in an analysis of 135 cases of carcinoma of the prostate, subjected to roentgen examination in the Mayo Clinic, found that metastasis to bones had occurred in 30.3 per cent. In addition, 10.2 per cent. of 362 cases had involvement of the regional glands. On this basis, metastasis found at the first examination contraindicated surgical treatment in approximately 40 per cent. of all cancers of the prostate. The local advancement of the disease with its early involvement of the bladder and surrounding structures, and the discouraging results following the radical operation, have also excluded practically all cases in which there is no metastasis from surgical treatment, except a few in which palliative suprapubic drainage is necessary. It is the benign enlargements of the prostate that are of surgical importance.

The first deliberate prostatectomy was performed by Billroth in 1867 as a perineal operation. Little progress was made in this method of approach until 1891 (Goodfellow). Dittel, Belfield, McGill, and Freyer were among the early surgeons to remove the obstructing gland by the suprapubic route as first executed by Fuller in 1894. Both suprapubic and perineal cystotomy were performed by different men for the removal of bladder stones, and so developed the two methods of approach for the operation of prostatectomy, the perineal route being the more popular in the early years of prostatic surgery because of its lower mortality rate. However, the high incidence of urinary incontinence and urethrorectal fistula following the perineal operation has in recent years caused the general adoption of the suprapubic operation. The perineal prostatectomy, as subsequently developed by Young, obviates such complications, and in his hands is followed by excellent functional results and an exceedingly low mortality rate.

The prostate develops as five distinct lobes from five separate groups of tubules. Lowsley's work has shown that the lateral and median lobes contain the largest number of tubules, the

posterior lobe a very few, and the anterior lobe, as such, reaches its maximal development at about the twentieth week of fetal life, practically disappearing at birth. Wilson and McGrath have shown that the initial activity in benign hypertrophy is in the epithelium of the tubules, and on this basis it seems reasonable to assume that hypertrophy would occur in those lobes containing the largest number of tubules, that is, the lateral and median lobes. It is important in the surgical approach to the gland that benign hypertrophy seldom occurs in the posterior lobe, and practically never in the anterior. The suprapubic transvesical route approaches directly those lobes involved in benign hypertrophy, without jeopardizing the external sphincter, on which there is complete reliance for control before and after prostatectomy for an intravesical gland. Furthermore, it possesses the advantage of affording opportunity to deal with associated lesions of the bladder, stones, and diverticula when present. From the standpoint of mortality rate alone, there is now no choice between the perineal and suprapubic operations. The mortality rate in the early years of prostatic surgery was exceedingly high, and only through the recognition of the associated renal insufficiency, and its treatment, together with accurate surgical procedures, has the mortality rate been reduced.

Preceding the advent of reliable renal functional tests, it was not possible to estimate the amount of associated renal damage, but uremia was the foremost cause of death following prostatectomy. The uniformly high mortality rate following prostatectomy performed in the presence of chronic renal insufficiency led to the two-stage operation of suprapubic cystostomy preliminary to prostatectomy, which resulted in a marked reduction in the mortality rate. The two-stage prostatectomy in itself, in terms of operations, decreases the death rate by one-half, even though the same number of patients die. It is noteworthy that when the two-stage operation is employed, most patients who die succumb after the preliminary drainage or first stage, because of the renal insufficiency. Patients who survive the first operation, and recover from the renal insufficiency, usually survive the second stage prostatectomy. In considering mortality rates, the point to be emphasized is that the mortality rate of the first procedure is not included in the mortality statistics of the operation of

prostatectomy, the second stage, and therefore, the latter mortality rate is reduced. During the last two years the operation of suprapubic cystostomy at the Mayo Clinic has been accompanied by a mortality rate of 8 per cent. Aschner has recently reported a rate of 47 per cent. following cystostomy in cases of prostatic obstruction. Even though the deaths following the first stage of a two-stage prostatectomy are usually not charged against the operation of prostatectomy, the result is the same, so far as the patient is concerned.

Relatively simple and reliable renal functional tests, which determine when a patient may or may not be operated on with relative safety, have aided in the standardization of the treatment of prostatic obstruction. Of the renal functional tests, the phenolsulphonephthalein test of Rowntree and Geraghty and the blood urea estimation are most reliable. Only under unusual circumstances should prostatectomy be done if the phenolsulphonephthalein return is less than 20 per cent., and the retention of urea more than 50 mg. for each 100 c. c. of blood.

In the evolution of the operation of prostatectomy, the two-stage operation has fulfilled a distinct purpose in emphasizing that preliminary drainage of the bladder is essential to the successful management of the patient with an obstructing prostate and resultant renal insufficiency. Drainage of the bladder by cystostomy, when the patient survived that operation, was followed by recovery of renal function, so that the second stage could be done subsequently with little risk. A review of those cases in which death occurred after the preliminary cystostomy shows that practically all the deaths were from acute uremia. This led to the recognition of the fact that all patients with prostatic obstruction and residual urine were potentially in a state of uremia, if not actually so, at the time of operation, and that the sudden emptying of the distended bladder precipitated acute uremia. It was also noted that slow withdrawal of urine from a distended bladder did not precipitate acute uremia.

In 1920, van Zwalenburg described a method of gradual decompression by means of a urethral catheter, which obviates the preliminary cystostomy and accomplishes the same purpose with very little risk to the patient. It eliminates the mortality rate of the first stage of the two-

stage operation, and converts the procedure into a one-stage operation, which allows the application of the general principles of surgery, that is, exposure, visualized conduct of the operation, and accurate hemostasis. Judd and Cabot were among the first to employ the one-stage operation and to apply these principles. Not only is it unnecessary from the standpoint of mortality rate and functional result to utilize the two-stage operation of prostatectomy, but in the majority of cases it is inadvisable. However, because of associated lesions of the bladder, such as stones in 12 per cent. and diverticula in 5 to 7 per cent., and intolerance to drainage of the bladder by urethral catheter, preliminary to prostatectomy, in approximately 7 per cent., the one-stage operation cannot as yet be routinely executed. However, in the Mayo Clinic, in 1923, 81 per cent. of 202 prostatectomies were performed by the one-stage method with a mortality rate of 3.1 per cent. A review of our own cases, and the statistics of others, tend to show a higher mortality accompanying the two-stage operation. Aschner reports a mortality rate of 8.5 per cent. of 233 patients following the second-stage prostatectomy (excluding the deaths from the first stage), as opposed to a rate of 6.8 per cent. of forty-four patients by the one-stage operation.

Patients with prostatic obstruction, because of their age and the associated cardiovascular changes of that age, with the additional renal insufficiency incident to the urinary retention, must be regarded as substandard risks. Nevertheless, the marked reduction in the operative mortality rate as the result of preliminary treatment and modern surgery, with satisfactory results in 90 per cent. of the cases, offers these patients a more favorable prognosis than has hitherto been given.

MALIGNANCY OF THE BLADDER

Malignant tumors of the bladder had been suspected clinically and found at necropsy prior to the advent of the cystoscope, but this instrument furnished a means for their early recognition, and with recognition a variety of methods of management developed. In the bladder, as elsewhere, malignancy varies in degree: tumors of low-grade malignancy which progress slowly do not tend to metastasize early, nor to recur after removal; those that develop rapidly metastasize extensively and early, and tend to recur after removal. However, until recently no means

were available to determine the degree of actual malignancy as a guide to treatment. Broders' classification furnishes an exact estimate of the degree of malignancy, an exact guide for treatment, and a means of establishing a relative prognosis. This classification is based on the amount of differentiation of the cell. Malignant tumors of the bladder which show the most differentiation of the epithelium are of the lowest grade malignancy, while those showing no tendency toward differentiation are most malignant. On this basis, four grades of malignancy have been established.

The treatment of malignancy of the bladder is dependent on the location of the growth, its extensiveness, absence or presence of metastasis, and the degree of malignancy. Bumpus, in a recent review of 527 cases from the Mayo Clinic, discussed the relative merits of various forms of treatment. His conclusions substantiate the relatively poor results reported by methods other than surgery. Fulguration was employed in eighty-four cases, with recurrence in 35 per cent., as determined by an accurate follow-up system. Radium alone, or radium in conjunction with some other form of treatment was employed in 212 cases, in thirty-four of which radium alone was used; five deaths ensued (14.7 per cent.) The value of radium as used in the remainder of the cases is problematic, as it was used in combination with cautery and other methods. From a strictly surgical standpoint these cases were all inoperable, but it would seem that radium was instrumental in retarding growth and prolonging life. Two hundred and forty patients, including seventy-eight who also had radium treatment, were operated on, excision or segmental resection being done; twenty-seven deaths ensued (11.25 per cent.) One hundred and five of 196 patients are alive from one to six years. Without entering into a discussion of the relative merits of the various nonsurgical methods, it should be stated that during the past few years the method of surgical diathermy has been productive of encouraging reports, which must stand the test of time and wider application.

From the surgical viewpoint, in the absence of metastasis, localized vesical tumors should be exercised by cautery or segmental resection, even though the trigone and one ureteral orifice are involved; for, according to our present knowledge, no other method of treatment of operable malig-

nant tumors of the bladder offers an equal chance for cure. If only one ureter is involved, and the blood urea is normal, indicating good renal function on the opposite side, division of the ureter, ligating and dropping it back, has been attended by a lower mortality rate than transplantation of the ureter under similar circumstances. Although the average operative mortality rate in the Mayo Clinic series was 11.25 per cent., the mortality rate attending resections of the bladder for malignant tumors involving the base and one ureter is higher than similar procedures for tumors of the dome and lateral walls. It is hoped that future alertness on the part of the patient and physician will stimulate earlier recognition and earlier institution of treatment for malignancy of the bladder, and thus improve the prognosis.

VESICAL CALCULI

Stones in the bladder are usually the result of urinary retention from prostatic or strictural obstruction, a foreign body as a nucleus, or a primary renal stone, or ureteral stone. In a review by Crenshaw of 606 cases of vesical stone observed at the Mayo Clinic, 95.2 per cent. occurred in males in whom obstructive lesions had resulted in retention, and only 4.78 per cent. in females. While stones may occur at any age, 70 per cent. of the patients having them were more than fifty years of age. There was associated prostatic enlargement in 60.34 per cent., associated diverticula of the bladder in 4.57 per cent., associated carcinoma of the bladder in 3.26 per cent., and stricture of the urethra in 9.8 per cent. In 577 patients operated on, the stones were single in 386 (66.9 per cent.) In eleven instances, vesical calculi, prostatic hypertrophy, and diverticula were associated.

Lithopexy may be resorted to in many instances, but more often suprapubic cystostomy is necessary. When prostatic hypertrophy and large single stones or multiple small stones are associated, there is usually considerable renal insufficiency, requiring the two-stage operation with prostatectomy as the second stage.

DIVERTICULA OF THE BLADDER

Diverticula of the bladder, until the advent of the cystoscope and its allied methods of examination of the bladder, were known only as a necropsy finding. However, with the modern methods of urologic diagnosis diverticula have

become important surgical lesions of the bladder, resulting in retention, obstruction, and renal insufficiency. They may attain a size equivalent to the entire capacity of the bladder and be a serious menace to the life of the patient. Recognition is possible by cystoscopic examination or cystogram, and those of an ounce or more capacity with retention and inadequate drainage should be treated surgically. They are associated in from 5 to 7 per cent. of obstructing lesions of the prostate. While they usually empty into the trigone, or near one ureteral orifice, the ureter is seldom involved, and rarely empties into the diverticulum. Small diverticula may be removed transvesically by the method of inversion, as described by Geraghty, but the larger ones demand extravesical dissection; they are usually readily separated from the ureter. In those with capacity equal to the bladder, causing marked renal insufficiency, suprapubic drainage of the diverticulum for some time previous to their excision allows stabilization of renal function and contraction of the diverticulum. From 1894 to 1923, there were 133 diverticula of the bladder operated on at the Mayo Clinic with six deaths. The excision of retention diverticula of the bladder is attended by excellent function results.

ANESTHESIA IN SURGERY OF THE LOWER URINARY TRACT

The use of other than inhalation anesthetics is a manifestation of progress in surgery of the lower urinary tract. Inasmuch as many of the surgical lesions of the bladder are obstructing, variable degrees of renal insufficiency are often associated, particularly in cases of prostatic hypertrophy. As the depressant effect of ether, the universal anesthetic, and the resultant necessity for short anesthesia was recognized, accuracy in the conduct of the operation was sacrificed for speed, resulting in inaccurate and often incomplete operation, and little attempt at hemostasis. The study of the cause of death following the operation of prostatectomy revealed, in order of frequency, uremia, hemorrhage, pneumonia, and sepsis. Because of its depressant effect on damaged kidneys, ether was a factor in producing uremia, the sacrifice of accuracy prevented adequate control of bleeding, and inhalation pneumonia was often directly referable to the anesthetic. The avoidance of inhalation anesthesia allows time for accurate conduct of the

operation and for hemostasis, and if pneumonia occurs, it is not of the inhalation type, but embolic in origin.

Spinal anesthesia has been successfully used in surgery of the lower urinary tract, but although it provides complete anesthesia and relaxation, it has the disadvantage of reducing blood pressure with coincident reaction, at times to an alarming degree, and cannot, therefore, be accepted as a safe anesthetic. The sacral anesthesia, popularized in this country by Labat, possesses all the advantages and none of the disadvantages of spinal anesthesia, and has been accepted as the ideal anesthetic in this field of surgery.

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THE TREATMENT OF DIABETES FROM THE VIEWPOINT OF THE GENERAL PRACTITIONER*

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When a patient walks into a general practitioner's office and a diagnosis of diabetes is made, a very insistent question immediately presents itself. In the light of the present day knowledge is he justified in accepting the responsibility for the treatment of this case? Should he refer the case to some one who is specializing in the management of diabetes? The law grants the doctor the privilege of accepting this responsibility, and the patient has given him a vote of confidence by appearing at his office for examination. At

another time diabetes may be thrust upon him with one of its wicked emergencies and he will then be confronted with the necessity for action. What action may he take with safety and profit to the patient? The present discussion is presented with the hope that it will clarify the problems involved and thus allow a more satisfactory solution of them.

Nature of the Disease. In diabetes there is a failure in glucose metabolism. A normal man may eat in the course of a day a quantity of glucose formers¹ which will yield 400 to 600 gms. of glucose and yet show no sugar in his urine. In fact the quantity of sugar which he can eat is limited not by his metabolism of this sugar but by the tolerance of his digestive system. If he indulges in an excess of sugar he may develop a diarrhea associated with cramps or he may vomit the food eaten. A second man may eat a meal unusually rich in carbohydrates, and sugar will appear in his urine in one to two hours time and will persist during the period of maximum absorption. Such a man is said to have an "Alimentary Glycosuria." The factor of safety in his glucose metabolism is smaller than normal, but this does not mean that it will necessarily be reduced to a pathological point. A third man eats what appears to be a normal diet of glucose formers and he shows large quantities of sugar in his urine. This man is said to have diabetes and we immediately begin to classify diabetes into the mild and severe classes. Thus on a fixed diet one patient will show a 24 hour excretion of sugar amounting to 5 grams and another may show an excretion of 40 grams. It is obvious that other things being equal one of these cases is relatively mild as compared with the other. If we refer a moment to Fig. 1, "The Diabetic Flame"² it will be noted that there are 9 sticks of kindling present and that 5 of these are burning and 4 are not. It can be readily seen that so far as the flame is concerned it makes a vast difference as to just how many of these sticks of kindling are actually burning. The difference is readily realized by reference to Fig. 2, "The Normal Flame," where all of the kindling is burning.

The statement has been previously made that in diabetes there is a failure in the glucose metabolism. This should now be extended by saying that in diabetes the fundamental and essen-

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tial defect is the failure to oxidize glucose. There are other defects which quickly arise when the glucose is not burned and some of these may be the precipitating cause of death in any given case. They however are secondary ones and



Fig. 1. Diabetic Flame

should be removed from the picture until the primary defect is fully appreciated and established in its central place. It is to be further noted that this loss of oxidative capacity for glucose is a quantitative process which may fluctuate widely from time to time and that the severity of a given case is measured by the extent of this loss. More positively we may say that it is measured by the number of sticks of kindling

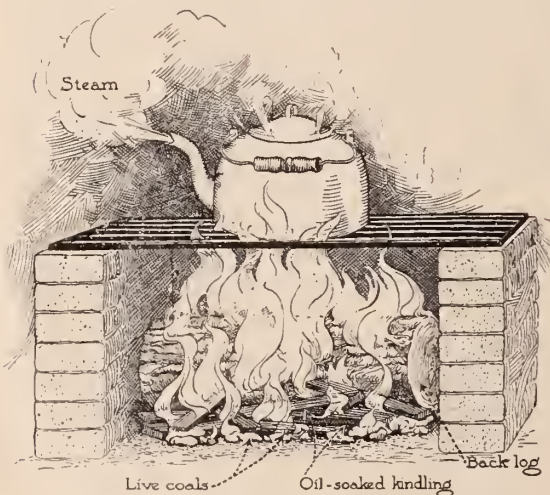


Fig. 2. Normal Flame

actually burning. The quantity of glucose then which a patient is able to burn represents his "Tolerance" and the estimate of this quantity constitutes the basis of all diabetic management.

It is obvious therefore that when a diabetic asks his physician what food he must eat in order to avoid a glycosuria, the physician simply can not answer the question. The patient has asked a qualitative question and there is no qualitative answer, strictly speaking. The answer required is a quantitative one. The situation is very similar to one arising when an Englishman, who speaks no German, addresses a German, who understands English but speaks no English. The German may understand perfectly any question asked him, but he can not answer because there is no medium of communication.

Principles of Diabetic Management. It is well therefore to see how this quantitative question has been answered. So the principles involved in the desugarization of a diabetic and in the establishment of him on a maintenance diet adequate for work will be briefly presented. This may be best understood by a reference to the two flames shown in the charts. Flame No. 1 shows the conditions present in diabetes. It will be noted that there are some "Live Coals" present which represent the glucose in the process of complete oxidation to CO_2 and H_2O . If no glucose was oxidized life would be quickly extinguished. Just as the flame would cease to burn without the coals. Some of the sugar is not burning. This is accumulating in the tissues and appears in the urine. The kindling which is burning is soaked in oil. This represents activated glucose or insulin soaked glucose. Then there is a big back log of fat present which is far too large for the bed of coals. This is smouldering and pouring out large quantities of smoke. The smoke represents B-oxy-butyric acid, diaetic acid and acetone, the so-called acetone bodies. The steam which is escaping is a measure of energy transformation by the kettle. Since the heat derived from the flame is small, the quantity of steam resulting is also small. In Flame No. 2 the normal metabolism is pictured. All of the glucose is insulin soaked and is burning. The back log of fat is commensurate with the bed of coals beneath. There is no smoke. There are no acetone bodies. The energy developed as shown by the steam is adequate to the bodily needs. This conversion of the diabetic into the normal state may be effected in two ways.

Diet Adjustment Alone. If diet adjustment

alone be utilized the process may be visualized in the following manner. The sticks of kindling which are not soaked in oil and which are not burning must be removed from the fire. The back log must be reduced in size so that it does not smother out the live coals. These changes give a flame, which is now burning cleanly all the constituents, but one which may furnish a smaller quantity of steam than is desired. In diet adjustment then the patient is desugarized by withdrawing the glucose until the quantity fed is below his tolerance. Simultaneously with this the fat also must be reduced. When desugarization is accomplished by these methods the food intake may be so small that it will be necessary to confine the patient to bed since there is not an adequate energy production for additional activities. Gradually the fire is built larger by the cautious additions of glucose as the body supplies insulin sufficient for its oxidation. Later small quantities of fat may be added also. This process is spoken of as building up the patient's tolerance. Such a procedure is slow often involving 5 to 6 weeks.

Diet Adjustment Plus Insulin. With the use of insulin we have theoretically a much simpler method of solving the problem. If the kindling can all be soaked in oil, it will burn. If it burns, then the back log will cease smouldering and will burst into flames. The smoke will disappear and the quantity of steam developed from the kettle in a unit of time will be increased. Consequently as in the diagram the conversion of Flame 1 to Flame 2 is accomplished by the addition of more oil, so the same transformation from a diabetic to a normal state may be accomplished by supplying more insulin to the body. The quantity of insulin soaked glucose will then be sufficient to allow the oxidation of the fats to go to completion and to prevent the formation of acetone bodies. The energy then furnished by the foods will be adequate to make a curtailment of the patient's activities unnecessary. However this theoretically simple solution fails in its practical application. If the dose of insulin injected be too great for the quantity of glucose present in the body then a toxic condition appears to which the name of "Hypo-glycemic Reaction" has been given. The reaction is so named because it is present when the blood sugar is unusually low and because it is relieved

by the ingestion of any type of glucose former.

The physician is again confronted with a quantitative relationship which must be solved. The three variables involved are the available food in the body and diet, the patient's tolerance, and the oxidative capacity of a given dose of insulin in a particular patient. It is safe therefore to say that any scheme of treatment which ignores such quantitative relationship is not a sound one therapeutically.

Conditions Necessary for the Treatment of Diabetes. Since the treatment of diabetes resolves itself into a metabolic study in which the food intake is accurately known and the output of sugar is carefully measured there must be developed a certain amount of machinery to accomplish these ends. A trained dietician must be available who can fill a quantitative diet order and who can use such ingenuity in the selection of her foods as will meet the demands of the appetite. A laboratory worker is required to make the various analyses needed. Most important of all there should be a resident physician who will see to it that the numerous details incident to the running of such a metabolic study are carried out. One of these workers must also assume the responsibility for the education of the patient in food values, diet calculations and changes, methods of testing urine, methods of injecting insulin, and other details incident to the handling of a case. It is obvious therefore that it would not be economical for a general practitioner to attempt to provide this machinery. Long ago this same economic problem was presented with reference to surgical cases. Here and there a man acquired an equipment, a nurse and affiliated with himself a fellow practitioner who would assist in operative procedures or give anesthetics as the case demanded. Such an arrangement became the nucleus of a small hospital and was gradually extended through the support of other practitioners, who found this a more economical method of handling surgical cases. The public and the physicians themselves next became dissatisfied with the handling of obstetrics in the home and so the maternity wards were added to this same hospital and these wards have grown rapidly in popularity. So far as medical cases are concerned the average small hospital is simply a boarding house. These cases can be handled almost as well at home as in the

hospital for there has been no attempt made to install medical equipment. The time has now arrived when this next step forward in the development of the hospital should be taken. Diabetes is a disease which demands this equipment and offers an incentive for its installation. If it is installed, good general practitioners will grow into good medical men just as good general practitioners have grown into good surgeons.

Management of Diabetes in Absence of Equipment. If then it is impossible for a general practitioner to undertake the treatment of diabetes without the equipment discussed above what shall he do with the cases coming into his hands? We may conclude therefore, he is justified in rendering "First Aid" only to diabetic patients. The question then arises as to when is "First Aid" required and of what does it consist? It is required when some complication occurs. A symptomless patient in whom a glycosuria has been accidentally discovered should be left alone until such a time as his regime can be changed under accurately controlled conditions. If he is symptomless he is burning enough glucose to support his metabolism. The fact that he is wasting a large amount of glucose in the urine is not of great significance. He is not at that time in danger as to life since he has adequate energy for his daily needs. The simple presence of a glycosuria then constitutes a potential danger. It is not necessarily a signal that this danger has arrived. The complications which constitute emergencies are, (a) acidosis, (b) dehydration states not associated with acidosis, and (c) acute inanition.

ACIDOSIS

Once the presence of an acidosis is established, the condition should immediately be considered grave. It should demand as careful consideration from the physician as an intestinal obstruction or an attack of acute appendicitis.

Acidosis Without Symptoms. If the patient simply has acetone bodies in his urine and no symptoms, and if the condition is not progressive, he may with safety be treated by the method formerly advocated by Joslin³ for desugarization. He is put to bed, kept warm and supplied with an abundance of fluids. Putting the patient in bed lessens his energy requirements by approximately 35%. Consequently a substantial cut may be made in the fat of the diet. At least half

of it should be removed. Such a reduction may be sufficient to stop the formation of acetone bodies. During the first 24 hours, 30 grams of bicarbonate of soda should be given to replace the bases excreted in the urine in combination with the acetone bodies.

Acidosis with Symptoms. With the onset of definite symptoms of acid intoxication, action should be energetic. The case becomes one which must receive insulin at once and be transported to a diabetic center. A few hours delay may plunge the patient into a coma and multiply the difficulties of handling the case 300 to 400 per cent. The plan here presented with certain modifications follows very closely one⁴ recently described by Woodyatt based on his experience with this class of cases. Certain facts of insulin action must be known before it can be used with safety:

1. By reference to Fig. 1 it will be seen that insulin acts only on glucose. If the supply of this is exhausted the patient may pass a sugar free urine and yet be suffering from acid intoxication.
2. Insulin action persists for 8 hours but it is maximal at the end of the 4th hour.
3. An overdose causes symptoms which are immediately removed by the ingestion of any glucose former.

As soon as the diagnosis is made the patient is given subcutaneously 60 units of insulin. This insulin will act over a period of 8 hours. A hypoglycemic reaction will not result if during this time he be given also 60 to 100 grams of glucose. A small glass of whole milk or a small glass of unsweetened orange juice each contain 15 grams of glucose. Hence then he may be given 4 to 6 glasses of such food at 1½ to 2 hour intervals. If the urine be examined by a quantitative test for sugar at the end of each two hours, then the dose of food to be given can be more easily regulated. At the end of 8 hours a second dose of 40 units of insulin is to be given. He can then be protected in the same way with food over the next 8 hours. During these 16 hours the patient should also be given 30 grams of Sodium bicarbonate. This usually brings the patient to the morning of the second day. By this time the acidosis is under control and the problem is now one of establishing him on a diet with interval feedings.

The following diet is one adequate for the maintenance of a patient weighing 50 Kilo (110 lbs.) at bed rest.

800 c.c. (27 ounces) milk and cream equal parts

300 c.c. (10 ounces) orange juice

2 eggs

This may be measured with equipment present in any household. It can be divided into 5 feedings per day so that maximum opportunity will be given the body to utilize its own insulin. Such a diet has a glucose equivalent of 104 grams. At this state the patient is probably burning 15 to 20 grams of glucose with his body insulin. We must therefore give sufficient insulin to take care of 80 to 85 grams. Consequently at 8 A. M. 30 units of insulin may be given and at 6 P. M. another 30 units. At 10 P. M. and 1 A. M. a careful observation is to be made for a hypoglycemic reaction. If the samples of urine collected at different periods of the day be examined for acetone and diacetic acid, some knowledge can be obtained as to whether these bodies are increasing or decreasing. Of course with an increase in the acetone, the insulin dosage must be raised and the patient protected accordingly. This plan of management is summarized in Table 1.

TABLE I
MANAGEMENT OF ACIDOSIS CASE WITH SYMPTOMS
Weight of Patient 110 lbs. or 50 Kilo

1st Day		
3 P.M.	Diagnosis made	30 gms. (1 oz.) Sodium Bicarbonate to be given in divided doses, before morning.
4 P.M.	60 units insulin subcutaneously. Protect by total feeding of 60-90 gms. of glucose (20 to 30 ounces of orange juice) 3 to 6 ounces to be given at 1 to 2 hour intervals. Examine urine at 2 hour intervals for sugar.	
12 P.M.	40 units insulin. Protect with 40-60 gms. glucose at 1 to 2 hour intervals. Examine urine at 2 hour intervals for sugar.	
2nd Day		
8 A.M.	30 units insulin Feed Diet 800 c.c. (27 ounces) milk and cream equal parts 300 c.c. (10 ounces) of orange juice 2 eggs	Value Glucose 104 Carbohydrate 70 Protein 39 Fat 108 Calories 1408
6 P.M.	30 units	
9-10 P.M.	Examine carefully for reaction	
12-1 A.M.	Examine carefully for reaction	

Such a regime may be continued until the patient can be transported to a diabetic center, where his tolerance may be recovered and his education completed.

DEHYDRATION STATES NOT ASSOCIATED WITH ACIDOSIS

In these cases the patient is burning sufficient glucose to protect his metabolism against the incomplete oxidation of fats. He is however, passing large quantities of urine in an attempt to rid the body of the excess glucose. He may be drowsy, somnolent and may actually have a temperature. If such a case is put to bed with a definite restriction of his diet, he will at once show improvement. If he weighs 50 Kilo or over he can then be given the diet suggested above for the second day of acidosis treatment.

ACUTE INANITION

This state is one which requires insulin treatment before any progress can be made. It is therefore best to conserve the patient's energies and get him to a diabetic center at once. It is uneconomic to attempt treatment at home since the emergency is rarely so great that the patient can not be transported.

SUMMARY AND CONCLUSIONS

1. In diabetes the fundamental and essential defect consists of a quantitative failure in glucose metabolism.

2. In treating diabetes the extent of the failure is first determined by measuring the residual capacity for glucose oxidation (patient's tolerance.) This tolerance is next built up by dietary means or supplied by insulin.

3. The treatment requires a definite amount of machinery, the maintenance of which would be unprofitable for individual physicians, but which should be supplied by the various hospitals serving a community. This equipment could then be made available to more than one physician.

4. A "General Practitioner" without such equipment is justified then in giving "First Aid" only to the emergencies of diabetes.

5. A plan for "First Aid" to a case suffering from acidosis is presented. The other emergencies are rarely so acute as to prevent transportation of the patient to a hospital with diabetic service.

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DISCUSSION

DR. DENEEN, Bloomington, opening the discussion, said:

I am sure we all appreciated Dr. Keeton's unique way of presenting the subject. He dealt, of course, only with the complications, but he made the statement that the patient is a quantitative proposition, not qualitative. In that respect I would like to say when you deal with 15 per cent. fruit and 15 per cent. vegetable, you are dealing with a qualitative proposition. I have seen diabetics who will run sugar on a certain amount, 15 per cent. fruits. Take them off and put them on 15 per cent. vegetable and you will get rid of the sugar. I believe there is a great difference in the quality that you use. It is better to have them 15 per cent. vegetable where you are dealing with a high degree of carbohydrates than if you are giving them straight sugar as we have in the past. There is a great difference in the individual, especially in the handling of insulin. I have had some that handled insulin beautifully. I have seen some good effects and some very bad effects. One of the bad effects is where you have gangrene. There it is better to get the diabetic sugar free upon diet and use the insulin afterwards. I have had a patient that died under the anesthetic with a most beautiful pink color, who was sugar free after using insulin however having gangrene.

We had two cases of ruptured appendix, in which they went through appendicitis, gave them insulin, got them sugar free with the insulin, put them on the table to remove the appendix, and later something happened to the heart and the patient passed out. A couple of them passed out within twenty-four hours. When we get them sugar free upon diet in most cases they do not need insulin. If they did we use it afterwards.

I remember one gangrene case we had that went along beautifully with insulin. After the operation the patient developed edema. She was gone from the hospital, seventy-five miles away. The doctor over there wrote me and I told him to discontinue the insulin, after which time the edema cleared up.

We are only using insulin in emergencies. I find that the majority of diabetics get along much better without the insulin. They are easier to handle. The psychology of the patient is better because in a short space of time the patient objects to the hypodermics. They become painful and they quit.

Another thing I find out is the torture of forcing the patient to weigh their food, feeding by scale, weighing it out. The first thing we know the patient quits. I have found out if they run a little sugar once in a while they do better than the patient that is sugar free all the time.

I find there is another type of patient that does very poorly upon insulin, that is the type which runs low specific gravity of the urine, having sugar intermittently, with low blood sugar, around normal, or only slightly raised. They are classified as renal diabetics. The few patients I had of that type soon went bad on insulin. They went better for a while, their general

symptomatology was better, but those patients died in a shorter space of time than if I had not used insulin. More and more I am convinced that the use of insulin is purely an emergency proposition, and as Dr. Keeton says, if they run sugar without acidosis it is not going to hurt them very much.

DR. R. T. PETTIT, Ottawa: I have had experience with eight cases of diabetic coma. Naturally they were of a more severe type than the ones Dr. Keeton mentions. They were in profound coma. I used the same plan Dr. Keeton advocates and gave even larger doses. In one case I gave 200 units in the first eight hours.

I would like to emphasize if you are going to treat emergency cases of coma, be prepared to stay with your patient continuously. Do not turn him over to some one else. When you get them along for twenty-four or thirty-six hours then the problems that taxes all your ingenuity and your knowledge is how to let go of the bear's tail. You have got hold and you don't know how to let go. It is an extremely difficult thing to know exactly how you are going to do it. However, in coma we are dealing with an emergency and if we are going to use insulin we must use radical methods.

DR. ROBERT KEETON, Chicago: In closing I will endeavor to answer the discussion elicited in the reverse order. Relative to the recognition of acidosis I divided the cases into two groups (a) those cases which presented acetone in the urine but which showed no symptoms as such leading to a diagnosis of the condition, (b) those cases in which not only does the urine show acetone bodies but the patient presents all the symptoms of impending coma. The latter class of cases are the real emergencies. They are to be treated while the patient can eat and co-operate. If they are allowed to slip into coma not only is the difficulty of handling the case enormously increased but every hour of acid intoxication does damage from which recovery becomes increasingly difficult.

With Dr. Pettit's advice that the physician must stay continuously at the bedside of an acidosis case, I agree. His vivid description of the attention that must be paid to the details of management and the difficulties which the physician experiences in establishing the patient on a diet after the acidosis has been neutralized summarizes admirably the experience of others in handling these cases.

Dr. Carr has discussed cases where the coma is definitely established and where co-operation of the patient is lacking. With such patients one is decidedly handicapped in knowing whether he has given an overdose of insulin or not. However the requirements for the use of large doses of insulin are just as urgent as in the cases of pre-coma. The fact that many of these cases do not recover even when the acidosis has been controlled signifies that the damage done by the acid intoxication was irreparable and not that the insulin treatment per se was a failure. To revert to the illustration previously used the danger in all these cases is that the physician will not build a sufficiently hot glucose insulin flame.

Dr. Deneen has raised several points which should be discussed briefly. In the first place I think most men agree that insulin should be omitted if a case can be handled with dietary measures alone. It is not considered good treatment to feed patients beyond their requirements.

Dr. R. T. Woodyatt in an address before the Society of Internal Medicine, Chicago, has called attention to the arterio-sclerotic type of diabetes. In these cases the insulin is not always of great value. If a patient is excreting 20 grams of sugar in the urine an injection of 20 units of insulin may not cause any reduction in the urinary sugar. If a reduction does occur, it is much smaller than was to be expected from the dose given. He has suggested that in these cases there is primarily no lack of insulin but rather some tissue defect. The cases of gangrene which Dr. Deneen has found tolerated insulin poorly would then belong to this type of diabetes.

The mental attitude of a diabetic patient is very important. His tolerance often fluctuates widely with the coming and going of periods of mental stress. Therefore, in the management of any given case this factor must be considered. Here is just another opportunity for the doctor to treat his patient as an individual and not as a case of diabetes.

I wish to take issue with the doctor's contention that 10 grams of glucose given in the form of orange juice is more harmful to the patient than 10 grams given in the form of 5% vegetables. Ten grams of glucose is 10 grams. It makes no difference what is its source so far as the ability of the body to oxidize it is concerned. The ultimate chemical structure is the same and its oxidation is determined by this structure. However, in discussing tolerance of a patient we must always consider the quantity of glucose presented to the cells per unit of time. Now 10 grams of glucose as C. P. glucose is absorbed more readily from the intestinal tract than 10 grams distributed in 333½ grams of 5% vegetables. Hence the doctor should have called attention to the fact that any method of feeding glucose which gives a slow uniform absorption is less apt to overtax the tolerance than a method which dumps the same amount of glucose into the blood in a short interval. Recognizing this principle I have in some cases adopted an extra feeding at 11 P. M. for cases in which I am quite anxious to avoid the use of insulin. Sometimes from 10 to 15 grams of extra glucose per day may be fed in this way.

PERSONAL EXPERIENCES IN THE TREATMENT OF ATROPHIC RHINITIS*

JAS. A. CLARK, M. D.,
CHICAGO

This subject is so old to the rhinologist and so much discussed and everybody has become so disgusted with it that it takes considerable nerve to try and present a paper like this to you. And

I wouldn't do it if I didn't think I had stumbled on to some things which I consider of help in the treatment of these cases.

All the text-books, as you know probably, discuss the symptoms and all that; but, when it comes to treatment, they discuss it with the idea of keeping them clean and letting them alone, and that no treatment does them any particular good. I assume all of you are perfectly familiar with all the text-books and literature on the ear, nose and throat. I am not going into any books at all. I am going to tell you a little experience I have had in trying to treat this disease of unknown etiology. Nobody knows what causes it, so far as I know. Of course, there are probably two dozen different theories as to the etiology. Some are very strong on sinus infections; that suppurative infections of the sinuses cause this disease. You do have a great many cases of sinus infection with atrophic rhinitis. Whether the ozena is due to the sinus trouble or whether it is the cause of it is hard to tell. There is no doubt that syphilis in some of these cases is some element of that infection. Whether they have syphilis and the ozena independent of each other, I don't know. Tuberculosis is another thing that plays the same role. Some are very strong for bacterial infection as the cause of this trouble. Some that the nostril is too big, and some that it is too small. There is no one theory that seems to hold up under trial.

My idea in watching these cases for a good many years and the bad results we got from treatment is that it was not a local disease at all and never had been a local disease. It was simply a local manifestation of a slow systemic toxemia of some sort which we don't know.

I don't know whether any of you are connected with any large clinics or not. But some four or five years ago, the question of bacteria in these cases was quite the rage. At that time the firm of Parke, Davis and Company sent out to all the clinics, I think, all over the country culture tubes and asked all of us holding clinics to make inoculations of these scabs, and to send it back to them. They got these cultures from all over the country and they attempted to make a bacterial vaccine, and they did, and sent it back to us to use. We started in to use it. We found that the dispensary patients didn't take very kindly to the hypodermic needle, and we didn't like to try it on private patients. But

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, Springfield, May 7, 1924.

we got no results, and I have never seen any mention made of those experiments at all. I have never seen any mention of it in the literature.

We all know what the particular bacteria is that causes the stink. If you want to smell something that is positively nauseating, if you will go over to Detroit and go into the P. D. laboratory, you can't get within three feet of the culture. It comes right through the glass.

There is no question but what these cases are very offensive to themselves, and more so to the friends who have to get near them. And it practically throws the doctor into nervous prostration when he gets a case coming to him for treatment.

The treatment of ozena has been one of the most unsatisfactory things in rhinology. It is the opprobrium of the profession. We don't like to see them come near us.

The more I saw of these cases, the more they came to bother me, the less success have I had with any kind of local treatment outside of keeping them clean. But there was something back of all of that, which was a systemic infection. I don't know what the cause is, but I believe it is a systemic poison of some kind. And the idea was, if it is a systemic infection of some sort, what are the remedies that we have used that have an effect upon these infections of various kinds through the body that we don't know or have no specific treatment for. My mind went back to years ago when we had our epidemic of smallpox. Before and during the Spanish War I treated a great many cases of smallpox. And the one thing that I found that dried up those pustules—they fell off and a great many of them didn't leave scars—was to begin to saturate those patients with calcium sulphide. Then we went from that, before we had anything better in the way of bacterial vaccines, and treated scarlet fever in the same way. Take any ordinary case of scarlet fever that you meet in practice, and in five days I will defy any inspector from any board of health to tell what's the matter with the patient. The rash simply fades away. Of course, we have bacterial vaccines which probably are better now, which we didn't have years ago.

The same way with whooping cough. We have a vaccine which checks them up. Before we had that, we used to saturate the children with cal-

cium sulphide and kept down the spasms. Even our old friend gonorrhea was very beautifully treated by saturating the patient with sulphide of calcium in the beginning.

So I began to saturate these patients with sulphide of calcium. Then keep up the local treatment, keep them clean, as we have to do with all local applications, and I think probably we have all used everything that was ever mentioned or ever heard of. Two things that have with me been most beneficial are permanganate of potash and ichthyol. You have all used them. They are old standards. But that didn't cure the cases. It didn't with me.

It is no unusual thing to pull out a whole complete cast of nasal cavity with your forceps, like a big shell. You have to put a clothes-pin on your nose, but in about two weeks' time you have all the odor gone. But you haven't stopped the scab formation, if the case is well developed.

I don't know of anything that will cure the atrophy. When the ciliated cylindrical epithelium is once destroyed, it is gone forever. After that you have a condition of sclerosis left in the nose which destroys the blood vessels and mucous glands, you get atrophy of bone and destruction of the normal mucous membrane. There is no treatment for that. That is gone. But you do stop the scab formation, and your patient gets along nicely. I have tried this out. I have been trying this out now for ten years. This is no new thing. I am not springing something on you that I have only tried on two or three cases, because I have been using it in the clinics of the Post-Graduate for ten years, and it was a long, long time before I said anything about it except to the doctors who have come in to the school there. We told them of it and showed them the cases. We tried it out with two sisters in the same family, with the same disease; one I gave sulphide of calcium, the other I didn't, all the other treatment being exactly the same. I have seen the difference in the quickness with which you stopped all of your scab formation.

Lately I have been adding to that. There has been a good deal of talk lately about the calcium content. You heard from Dr. Novak and some of them who mentioned about feeding them calcium. In addition to that, I have been giving parathyroid before they eat, about 1/20 gr. and 2 gr. of calcium sulphide after eating, and keeping up the local treatment just the same, as you

always have been doing, to see how much better these cases get along, how much quicker they heal over. This is not any experiment at all. It is only because of the results I have seen in such a large number of patients, and getting better results than I have ever been able to get with any other kind of treatment that I bring that before you as a help in treating these cases.

Dr. Jas. W. Sanders, Decatur: Dr. Clark, I don't quite understand how you use the calcium sulphide. In solution?

Dr. Clark: No.

Dr. Sanders: Just internally?

Dr. Clark: Yes. In pills.

Dr. Sanders: I thought you used the solution, too?

Dr. Clark: No.

Dr. Charles M. Robinson, Chicago: Is this treatment continuous?

Dr. Clark: You don't stop it in a week or two, any more than you do any other case.

Dr. Robinson: How long do you continue the medicine?

Dr. Clark: About six months. About two grains after eating. That's all they can stand. The younger the child the less destruction you get. After 15 years, it will take a longer time to stop the scab formation. In children you can stop it in a few weeks.

Dr. Robinson: What strength do you use?

Dr. Clark: A 4 per cent. solution of permanganate of potash, and then follow that up with a 10 per cent. solution of ichthyol and water rather than ichthyol and glycerine.

Dr. Wm. Moore Thompson, Chicago: Does your patient use the ichthyol at home?

Dr. Clark: No.

Dr. Thompson: How often do you see the patient?

Dr. Clark: Once or twice a week.

DISCUSSION

DR. CHARLES M. ROBERTSON, Chicago: I would like to mention that a very nice thing to clean out the nose is buttermilk. You take ordinary buttermilk, diluting it just enough so that it will run in easily. Buttermilk has the bacillus bulgaricus, which helps combat the rhinitis. It seems to have a salutary effect on scab formation. And then, of course, it is something they can use at home.

The Doctor says he used ichthyol in water instead of glycerine. Of course, glycerin is hygroscopic and would do more harm than good. Then powdered sugar

is very soothing and there is starch enough in it so that it keeps the scab from forming.

There is an old-timer that may be some of you or Dr. Clark may have used. Years ago Dr. Rumbold of St. Louis used hot vaseline in a spray. He took ordinary vaseline and heated it in a metal atomizer until it was hot and injected it hot into the nose by the spray. Just as soon as it strikes the mucous membrane it would solidify and you coat the whole inside of the nasal cavity with this vaseline covering which prevents scab formation.

DR. O. E. FINK, Danville: The older we get in experience in treating different diseases the more we change our opinions, and our opinion of atrophic rhinitis is one which we are very likely to change our opinion about as to the cause of treatment.

You have been taught some time back that it was always due to infection of the accessory sinuses. Now, believing that theory from men whose opinions I have had reason to respect, I made it a practice to open these accessory sinuses and I found each and every case was made worse. So, I have abandoned that procedure in the treatment of atrophic rhinitis. The doctor has right here something, I think, which is a good deal better than operative treatment for this distressing condition, not only to the patient but to ourselves, because we all hate to see a bad case of atrophic rhinitis come to us for treatment. At the present time personally, I am inclined to believe what some of the older men taught that this was a specific infection viz., syphilis.

THE WESTERN PHYSIOTHERAPY ASSOCIATION

The Seventh Annual meeting of the Association will be held at the Little Theatre, Kansas City, Mo., April 16 and 17, under the presidency of Dr. L. A. Marty of Kansas City. A number of men of national reputation will be present to address the members. The medical department of U. S. A. will also be represented. Dr. T. Howard Plank of Chicago will hold a clinic at the General Hospital on the afternoon of April 16. Members of the Association desiring to present cases for diagnosis or operation may make arrangements with the secretary for these cases to have the personal attention of Dr. Plank.

The Western School of Physiotherapy

Under the direction of Dr. B. B. Grover, will hold its seventh annual session, April 9, 10 and 11, at Hotel Bellerive, and 13, 14 and 15, at the Little Theatre. This school is largely post graduate in character for physicians only, and is conducted along strictly ethical lines.

The Exhibits

Any physician who is interested in the progress of physiotherapy, cannot afford to overlook the meeting and school. Full information may be obtained by addressing the secretary, Charles Wood Fassett, M. D., 115 East 31st Street, Kansas City, Mo.

THE FORMATION OF BONE IN THE PENIS

We are reminded by Jacoby in a recent communication (*Zeitschrift für urologische Chirurgie*) that while the os penis, os priapi, or os glandis, as it is variously called, is normal in many species of mammalia, it is rare to find it in human beings, and most of the cases have been found to be due to pathological conditions, developing after trauma or syphilitic lesions. But in some other cases the os penis has developed from plastic induration.

The cases of ossification of the penis in which there is no etiological reason in evidence are regarded by some authorities as true penis bones analogous to those found in some of the lower animals. Jacoby thinks he has come upon one such case.

The article shows several photographic plates made from penis bones in the Berlin Zoological Museum. In general the penis bone is to be found only in insectivora, bats, rodents, beasts of prey, semi-apes, and apes. The bone is peculiar in size and shape for each species and Pohl says that it may be used as a species characteristic. It is always single. In the walrus it is 55 cm. long, in the whale, 2 meters. In all animals having a penis bone the bone constitutes a part of the glans, and is placed dorsally to the urethra. It forms a sort of continuation of the septum between the corpora cavernosa. In man, on the contrary, the bone when present in the penis has no definite shape, it is situated in the shaft or at the root; it is an irregular flat bone formation of the tunica albuginea.

In animals it has a definite physiological function and aids in copulation, in human beings it interferes with copulation.

A CASE OF PRECOCIOUS PUBERTY

Hutchison, in the *Proceedings of the Royal Society of Medicine*, London, describes a case of a girl, aged three and a half years, who began to menstruate at seventeen months, and continued at more or less regular intervals of one month up to present time. The child's weight was 52 pounds, height 44 inches, and the secondary sexual characteristics were well developed. Though dentition was normal, the skeletal development was that of a child of thirteen or fourteen years. Aside from fits of bad temper, the child was mentally normal and bright for her age. The condition was believed to be due to ovarian hypersecretion.

Society Proceedings

ADAMS COUNTY

Meeting of February 9, 1925

The regular meeting of the Adams County Medical Society was preceded by a reception and dinner with the Woman's Auxiliary to the Adams County Medical Society in honor of Dr. Thomas McDavitt of St. Paul and was held at the Hotel Quincy at 5:45 P. M. The

Society and Auxiliary members present numbered forty-three. At the conclusion of the dinner the members of the Medical Society adjourned and the Woman's Auxiliary held their meeting.

The meeting was called to order at the Chamber of Commerce at 8:20 P. M. by the President, Dr. C. D. Center.

The Chair asked for a detailed report of what the Convention Committee had been doing and Drs. Pearce, McReynolds, Stevenson and Wells reported the activities of their various committees. Dr. A. H. Bitter, reporting for the Entertainment Committee, stated that the Social Meeting in January resulted in a deficit of \$26.50 to the Society. Dr. Stevenson made a motion that this deficit be paid from the Treasury. Seconded and carried. The Secretary then read communications that had been received since the December meeting as follows: A letter of resignation from Dr. J. K. Reticker; a letter of resignation from Dr. J. G. Bullett; a letter accepting Honorary Membership in the Society from Dr. Abby Fox Rooney; a letter from Dr. J. W. Pettit announcing that the Illinois Tuberculosis Association would cooperate with the Illinois State Medical Society in regard to the conduction of clinics; a letter from the Gorgas Memorial requesting the appointment of a member from our Society to represent the Gorgas Memorial on the State Governing Board. Dr. Nickerson made a motion that the Chair appoint a member to serve on this committee. Seconded and carried. (Dr. W. W. Williams appointed by Chair.)

Under head of new business Dr. Center announced the appointment of an Advisory Committee to assist him in the work of the Society during the year. This committee to consist of the following members: Drs. Harold Swanberg, Grant Irwin, E. Zimmermann, Walter Stevenson and A. H. Bitter. Dr. Nickerson made a motion that the Society confirm the action in the appointment of an Advisory Committee. Seconded and carried.

The Secretary then read the following resolution that had been unanimously approved by the Advisory Committee: "Sincerely believing that the interests of the public will be best protected thereby it is

RESOLVED: That the Adams County Medical Society does not approve of the establishing of a laboratory by the Quincy Public Health District that will exceed the scope of rendering aid in the diagnosis of communicable diseases, and of performing non-clinical tests (water, milk, sewerage, foods and beverages.) Dr. Wells made a motion that the resolution be adopted which was promptly seconded. The resolution was then discussed by Drs. Nickerson, Baker, Wells, Montgomery and Swanberg. Dr. Baker condemned the resolution stating that it would mean nothing if adopted and would only stir up public agitation; that it was unnecessary for as a member of the Quincy Public Health District Board he would promise the profession

that no clinical laboratory examinations other than pertained to communicable diseases would be performed. It was pointed out in apposition that the present Public Health Officer at the special meeting of the Society held last month stated that all kinds of clinical laboratory tests would be made by the proposed laboratory; that if such would be the case it would be another step toward "State Medicine;" it was also a fact that it was uncertain if Dr. Baker would always be a member of the Board and that he might not be elected at the Spring election. Dr. Wells then withdrew his motion and made a motion that the resolution be tabled. Seconded by Dr. Baker. The motion to table the resolution was lost. Drs. Center, Swanberg and Koch spoke in favor of the adoption of the resolution and Dr. Koch made a motion that the original resolution be adopted. Seconded by Dr. E. Zimmermann. Dr. Wells then offered a substitute resolution as follows:

"**RESOLVED:** That the Adams County Medical Society go on record as favoring the establishing of a laboratory by the Quincy Public Health District for the examination of water, milk, sewerage, foods, beverages and the diagnosis of communicable diseases." This was seconded by Dr. Baker and carried. The Secretary then read the following resolution that had been unanimously adopted by the Advisory Committee. Because of the newspaper publicity that has appeared in connection with the proposed changes in the laboratory of the Quincy Public Health District it is hereby.

"**RESOLVED:** That the Adams County Medical Society extend a vote of confidence in Dr. Frank Cohen for his ability as a clinical pathologist." Dr. Jurgens made a motion that the resolution be adopted. Seconded by Dr. Baker and carried without opposing vote.

The Secretary then asked the pleasure of the Society in regard to the conduction of the *Bulletin* during the coming year and that if same was desired that it would be necessary to expend a hundred dollars for the year as was done last year. Dr. Nickerson made a motion that the *Bulletin* be conducted again as during the past year and that a voucher be drawn for \$100, to cover the necessary expense. Seconded and carried. The Secretary then presented a few bills that had occurred since the December meeting and Dr. Nickerson made a motion that these bills be allowed and a voucher drawn for the amount necessary to pay same. Seconded and carried. The applications for membership into the society by Dr. Tully Snider of Liberty and Dr. C. R. Hecox of Golden were read and ordered to be turned over to the Board of Censors for consideration.

The Chair then called upon the guest of the evening, Dr. Thomas McDavitt of St. Paul, Minn., Trustee of the American Medical Association to address the society on the "Workings of the American Medical Association." Dr. McDavitt described with much detail the various activities of the A. M. A. and also warmly commended our *Bulletin*, stating that it was one of the best *Bulletins* received at the A. M. A. Headquarters from any county Medical Society. The discussion of Dr. McDavitt's paper was conducted by Drs. Nickerson, Wells, Koch, Williams, being finally concluded by

Dr. McDavitt. Dr. J. W. Blan then presented an interesting case report of a case of Eclampsia occurring in his practice. (Published in March *Bulletin*). This was discussed by Drs. Wells, Montgomery, Werner and finally closed by Dr. Blan. Dr. J. H. Blomer then read an interesting paper on, "Chlorine in Respiratory Disorders." (Published in March *Bulletin*.) This was discussed by Drs. McReynolds, Koch and finally closed by Dr. Blomer. A motion for adjournment was then carried about 10:40 P. M.

HAROLD SWANBERG, M. D.
Secretary.

CHRISTIAN COUNTY

The Christian County Medical society met at the Antlers Hotel, Taylorville, February 3, where eighteen of us sat down to a very enjoyable six o'clock dinner and passed the hour in a get-together-social time and then repaired to the upper parlor and held the business part of the meeting.

The minutes of the last meeting were omitted and the election of officers resulted in the following list: president, Dr. S. B. Herdman, Taylorville; vice-president, Dr. Jesse P. Simpson, Palmer; secretary-treasurer, Dr. D. D. Barr, Taylorville (16th time); delegate, Dr. G. L. Armstrong, Taylorville; alternate, Dr. T. A. Lawler, Taylorville; legal committee, Dr. J. N. Nelms, Taylorville; public health, Dr. J. H. Miller, Pana, and Dr. W. H. Mercer, Taylorville; censors: Drs. T. A. Lawler, W. H. Mercer, and J. N. Nelms, all of Taylorville.

No other business being before the meeting the scientific part of the program was opened by Dr. R. C. Danford, of Pana, who presented the case history of a case of carcinoma which had many peculiarities among which was the almost fatal termination of the patient at operation and this followed by such improvement that the patient seemed well on the road to recovery and later went the way they all do. This report led to the general discussion of cancer which was most interesting and profitable and in which nearly all the members took a part.

Following this Dr. S. B. Herdman opened the discussion of goiter under the title of "Lugol Solution in the treatment of Goiter." In this discussion the doctor gave his experience in the one case (of lugol solution) and then went on to give a very interesting discussion of goiter and the most approved treatment. Also mentioned the general opinions as expressed at the Bloomington congress. Others joined in the discussion and the meeting lasted until a late hour and the members left feeling that we had enjoyed one of the most profitable meetings that we have had for a long time.

D. D. BARR, Secy.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Meeting of February 11, 1925

Pneumonia, with an apparently successful treatment.

Cold the Chief Exciting Cause..... Bernard Maloy

Recent Advances in the Specific Therapy of Labor Pneumonia. Lantern Slides.....
 Russell L. Cecil, New York, N. Y.
 Discussion: Frederick Tice, Gordon G. Burdick.

Meeting of February 18, 1925

1. Diagnostic and Therapeutic X-Radiation in Pregnancy....W. A. Newman Dorland and M. J. Hubeny
 Discussion—B. C. Cushway
2. The Classification of Thyroid Disturbances from the Viewpoint of the General Practitioner.....
James H. Hutton

Discussion

3. Injuries to Blood Vessels and Their Management
R. W. McNealy
 Discussion—C. W. Hopkins, Karl A. Meyer
Meeting of February 25, 1925

Diagnostic Clinic

1. Surgical Treatment of Gastric Ulcer. Demonstration of Patients.....Karl A. Meyer
 Discussion, Frederick Tice
2. The Clinical End Results of Partial Gastrectomy for Gastric and Duodenal Ulcer.. Alfred A. Strauss
 Discussion, Leon Bloch

Marriages

HARRY BAKWIN to Dr. Ruth Mae Morris, both of Chicago, at Paris, France, February 2.

MILTON MANDEL to Miss Betty E. Snell, both of Chicago, February 12.

CARL APPLE to Miss Minnie Kaplan, both of Chicago, February 8.

JAMES FRANCIS CURRY to Miss Winifred K. Baggione, both of Chicago, Dec. 6, 1924.

EDWIN B. GODFREY to Miss Jane Raymond, both of Chicago, Dec. 19, 1924.

FRIEDA HIRSCHBERG to Mr. Harry M. Lawrence, both of Chicago, January 3.

Personals

Dr. Herbert H. Christensen, Wausau, Wis., addressed the Chicago Surgical Society, February 6, at St. Luke's Hospital on "Paralysis of the Deltoid Following Shoulder Injuries."

Dr. Ralph A. Kinsella, professor of medicine, University of St. Louis School of Medicine, St. Louis, addressed the Rock Island County Medical Society, East Moline, January 15, on "Chronic Rheumatism."

Dr. James B. Herrick, president of the Chi-

cago Association for the Prevention and Relief of Heart Disease, addressed that association, February 19, at the City Club on "Work of the Association," and Dr. Charles G. Farnum on "The Cardiac in Industry."

Dr. Elmer L. Kenyon addressed the Chicago Laryngological and Otological Society, February 2, Great Northern Hotel, on "Speech Complications in Certain Cases with Unusual Palates—Exhibition of Patients."

Dr. Carl A. Hedblom, professor and head of the department of surgery, University of Wisconsin Medical School, Madison, addressed the Winnebago County Medical Society, Rockford, January 20, on "Surgery of the Breast."

Dr. George W. Duvall, Owensboro, Ky., and for the last four years director of the Daviess (Ky.) County Health Department, has been appointed superintendent of the Central Free Dispensary at Rush Medical College.

Dr. Thomas S. McDavitt, St. Paul, Minn., addressed the Adams County Medical Society, Quincy, February 8, on "The American Medical Association," of which for years he has been a trustee. A reception and dinner were given in honor of Dr. McDavitt preceding the meeting.

Dr. Harold B. Wood, director of health, Bloomington, has tendered his resignation, effective February 7, to accept a position in the State Health Department of Pennsylvania. Dr. Wood will have charge of the investigation and control of contagious diseases and will be located at Harrisburg.

Dr. G. W. Boot has been appointed Bronchoscopist to the Illinois Eye and Ear Infirmary.

Dr. J. S. Nagel recently addressed the staff of St. Mary's Hospital of Tucson, Ariz., on "The Clinical Significance of Blood in the Urine."

Dr. Frank Smithies, Professor of Medicine, School of Medicine, University of Illinois, delivered the annual Joyce Foundation lectures before the Academy of Medicine, Portland, Oregon, January 7 and 8, upon the following topics: "The Newer Conception of Peptic Ulcer, with Results Following Non-Surgical Treatment of 470 Cases by the 'Physiological Rest' Method" and "Infection as an Etiological Factor in So-Called 'Pernicious Anemia' and Its Significance With Regard Treatment."

News Notes

—The appellate court, February 3, reversed the order of the circuit court judge, which compelled the health commissioner of Chicago to issue a license for a birth control clinic.

—At the annual meeting of the Chicago Ophthalmological Society, January 19, Dr. Charles P. Small was elected president; Dr. M. H. Lebensohn, vice-president, and Dr. Robert H. Buck, secretary-treasurer.

—At a meeting of the Chicago Tuberculosis Society, February 12, at the Municipal Tuberculosis Sanitarium, Dr. Henry Kennon Dunham, Cincinnati, and his associate, Dr. Vera V. Norton, read a joint paper on "The Roentgen Ray as an Aid in Directing Treatment of Pulmonary Tuberculosis."

—Stanley A. Gracey and Clement Furgeson, Mount Carmel, unlicensed chiropractors, were recently found guilty by a jury, fined \$400 and costs and sentenced to six months on the penal farm at Vandalia. Kitty Gracey, Mount Carmel, an unlicensed chiropractor, was found guilty by a jury and fined \$400 and costs.

—The Belleville Trades and Labor Assembly passed a resolution February 3, which was, in part, as follows:

Whereas, All well regulated cities protect the health of the people, and especially of the children, by the enactment of ordinances on sanitation, and protect citizens from impure and contaminated food products, be it

Resolved, That in the interest of public health the Belleville Trades and Labor Assembly, in meeting assembled, appeals to the city council to enact an ordinance providing that all milk used for human consumption in the city must be pasteurized before being offered for sale, and providing a penalty so severe that no person or firm will attempt its violation, and thus prevent a possible typhoid or other epidemic among the children.

—At a recent conference of committees representing the council of the Illinois State Medical Society and the Illinois Society for Crippled Children, in Chicago, the joint committee agreed, after discussion, to recommend to its respective societies that:

1. The Illinois State Medical Society provide an advisory council which shall consist of five members in good standing, whose duty it shall be to cooperate with, counsel and advise the executives and board of directors of the Illinois Society for Crippled Children on all methods of procedure in medical matters.

2. Any work undertaken under this proposal shall avoid the professional aggrandizement of any individual or group of individuals; and it shall studiously avoid the pauperization of the public.

3. If clinics be held in any locality in Illinois, they shall be held in conjunction with the local component unit of the Illinois State Medical Society.

—The excess of births over deaths in this state last year was 59,972, a net increase in population sufficient to people a city the size of Springfield, or the seven counties of Brown, Calhoun, Edwards, Hardin, Henderson, Kendal and Putnam, the state health director says. The favorable difference between the birth and death rate per thousand population has exceeded that of last year (8.8) only twice in the last decade. For the last four years the average death rate of Illinois was 11.4 and for the preceding four years 13.8—a difference in rate that means a saving of almost 45,000 lives in four years. For the fourth consecutive year Chicago has reported a lower death rate than the remainder of the state, reversing the condition which prevailed during all previous years.

—St. Clair County Medical Society elected the following officers for 1925: president, I. L. Foulon; president-elect, W. F. McNary; vice-president, E. W. Canaday; secretary, O. M. McCann; advertising manager, E. C. Spitze; assistant advertising manager, W. Wilhelmj; medico legal advisor, J. H. Fulgham; board of censors—H. M. Voris, J. Beykirch, E. H. Lanc, all of East St. Louis, and A. E. Hausing of Belleville, treasurer.

—Coles-Cumberland County Medical Society elected the following officers for 1925: president, R. H. Craig, Charleston; vice-president, Norman Starr, Charleston; secretary and treasurer, E. E. Richardson, Mattoon; delegate, C. E. Morgan, Mattoon; board of censors, H. A. Schaffer.

—The American Urological Association, our largest national urological association, meets in

St. Louis, May 21, 22 and 23, with headquarters at the Chase Hotel. Mornings will be devoted to clinics in the various hospitals and the afternoons to the scientific session which will be conducted in the ball room of the Chase Hotel. For detailed information write John R. Caulk, M. D., 723 University Club Building, St. Louis, Mo.

—The Chicago Council of Medical Women will meet at 8 p. m., March 24, at the City Club of Chicago. Doctors Stasey and Offut from the Mayo Clinic will participate in the Symposium on Hemorrhage as related to Gynecology. All members of the Chicago Medical Society are invited.

—The American Board of Otolaryngology will hold its first examination during the meeting of the American Medical Association in Atlantic City, May 25 to 28.

According to the rules of the Board, applicants are divided into three classes.

Class 1. Those who have practiced Otolaryngology ten years or more.

Class 2. Those who have practiced Otolaryngology five years and less than ten years.

Class 3. Those who have practiced Otolaryngology less than five years.

The type of examination is different for each class.

The Secretary, Dr. H. W. Loeb, announces that thus far over three hundred applications have been made.

DEATHS

DAVID WILSON GRAHAM, for many years clinical professor of surgery, Rush Medical College, Chicago, a Fellow A. M. A., died at his home, February 9. He was born in Henderson County, Illinois, in 1843, and after graduation from Monmouth College, attended the Bellevue Hospital Medical College, New York, receiving his M. D. in 1872. He was demonstrator of anatomy at the Women's Medical School of Northwestern University, Chicago, 1874-1877, professor of anatomy, 1877-1882, and professor of surgery, 1883-1898. For more than forty years, Dr. Graham was connected with Rush Medical College, and since its founding with the Presbyterian Hospital. He was president of the Illinois State Medical Society, 1894-1895; of the Chicago Medical Society, 1885-1886; and of the Chicago Surgical Society, 1906-1907. Dr. Graham was a member of the American Association of Obstetricians and Gynecologists, and of the Chicago Pathological Society, a Civil War veteran, formerly surgeon to the Cook County Hospital, the Central Free Dispensary, and

consulting surgeon to the Evanston Hospital. He served the American Medical Association as a trustee from 1894 to 1897. A son, Dr. Evarts A. Graham, is professor of surgery in Washington University Medical School, St. Louis. Dr. Graham was a man of rugged character with a characteristic humor and a striking personality.

ADAM GRIM, Franklin Grove, Ill.; Rush Medical College, Chicago, 1881; a Fellow A. M. A.; aged 74; died, January 10, at the Lincoln Hospital, Rochelle, following an appendectomy.

FRANK GUILLAUME, Chicago; Chicago Homeopathic Medical College, 1890; aged 68; died, February 8, of dilatation of the heart.

JOHN WALLACE HEWETSON, Lyons, Ill.; Hahnemann Medical College and Hospital, Chicago, 1897; member of the Illinois State Medical Society; served in the M. C., U. S. Army, during the World War; aged 52; died, January 23, at Highland Park, Mich.

CAROLINE B. HOPKINS, Glencoc, Ill.; Northwestern University Woman's Medical School, Chicago, 1897; a Fellow A. M. A.; aged 52; died, February 12, at the Ravenswood Hospital, Chicago, of obstructive jaundice and uremia.

CHARLES JOSIAH LEWIS, Chicago; Rush Medical College, Chicago, 1865; member of the Illinois State Medical Society; formerly professor of neurology, College of Medicine and Surgery, Chicago; aged 86; died, February 12, of valvular heart disease and chronic bronchitis.

DAVID WARREN MILLER, Gilman, Ill.; Jefferson Medical College of Philadelphia, 1880; president of the board of education; aged 70; died, January 18, of cerebral hemorrhage.

LOISE NEWTON MILLER, Molinc, Ill.; Hahnemann Medical College and Hospital, Chicago, 1885; aged 63; died, January 16, of cerebral hemorrhage.

NELLIE VAUGHN FORREST TUCKER, Chicago; Hering Medical College, Chicago, 1899; aged 60; died January 29, of carcinoma.

GEORGE B. WARNE, Chicago; Hering Medical College, Chicago, 1897; aged 74; died, January 22, of acute dilatation of the heart.

FRANCIS O. HARRISON, Christopher, Ill.; Eclectic Medical Institute, Cincinnati, 1878; aged 78; died, January 29.

JOHN FRANKLIN KEEFER, Sterling, Ill.; Rush Medical College, Chicago, 1881; member of the Illinois State Medical Society; formerly proprietor of the Keefer Hospital; aged 66; died, February 2, of cerebral hemorrhage.

FLOYD ALBERT SMITH, Canton, Ill.; University of Illinois College of Medicine, Chicago, 1913; member of the Illinois State Medical Society; formerly county coroner; aged 36; died, January 27, following a long illness.

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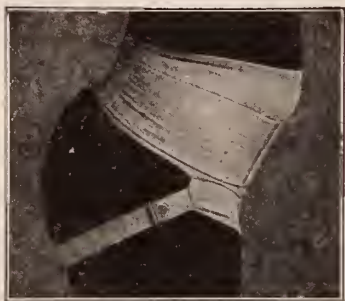
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Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

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Editorial

THE QUINCY MEETING

The seventy-fifth annual meeting of the Illinois State Medical Society will be held, as in former years, during the third week of May, 1920-21. This meeting will be an epoch making one since it will be the Diamond Jubilee Meeting of our state society, as well as that of our hosts, the Adams County Medical Society, both societies having been organized in 1850. An unusual and interesting program is being arranged for, both by the program committee, and the local committee of arrangements. Everything points toward a large attendance, since few of the men now in active practice in Illinois will ever again have an opportunity to attend a jubilee meeting—most of us will have crossed the Great Divide, when the one hundredth mile stone in organized medicine shall have been reached. The Hotel Quincy will be headquarters; reservations may be made by addressing the manager, Hotel Quincy; other hotels, all European, are Newcomb Hotel, Virginia Hotel, Park Hotel, Hasse Hotel. Quincy is one of the most westerly points in Illinois. Physicians residing in the northern part of Illinois, Chicago, etc., may reach us via Burlington Route; those coming from eastern part of the state may conveniently use the Wabash; while those from southern Illinois will obtain better service via St. Louis. Through train service may be had on all of above lines. Some may wish to drive via hard roads, to these will say there is a gap of dirt road about 50 miles east of here which may, if season should be wet, make travel by auto difficult, while if weather should be pleasant, the few miles of dirt roads will not cause any serious inconvenience. A good program, with some novel features, and a good time are assured. We take the liberty to suggest that the secretary of each respective county society will read above at

their next regular meeting. Quincy will be glad to entertain you. Let's go.

WARREN PIERCE,
General Chairman, Committee of
Arrangements.

H. P. BEIRNE,
Chairman Publicity and Program
Committee.

OVER-THEORIZING AND ULTRA-EXPENSIVE CURRENT SYSTEM OF MEDICAL EDUCATION

PREPARATION VERSUS PRACTICE. MEDICINE
CANNOT BE TAUGHT BY BOOKS ALONE. THE
OLD "APPRENTICE SYSTEM" MIGHT
BE REVIVED IN SOME DEGREE
TO GOOD EFFECT

Medical education in America was, at the outset, an absorption of knowledge by the apprentice system. This was the only method by which practitioners could be supplied for the mass population as the academic advantages of European institutions were denied to all except a very few. The magnificent system of American medical schools was as yet unknown.

The very magnificences of this system have fetched in their train such drastic evils that it would appear as if a sudden return to apprentice methods might be of incalculable benefit not only to the patients, but to the physicians themselves.

Unless some happy medium is evolved that will place the medical student at least half way between the deficiencies of the old fashioned apprentice plan, and the superfluities of our over-theorizing and ultra-expensive current system of medical didactics, the present top-heavy scheme is doomed to certain demolition.

As matters are arranged now, it takes a man so long to get ready to practice medicine that he is worn out both financially and enthusiastically before he ever places his finger independently on his first patient's pulse. There is so much text book and laboratory knowledge fed to the embryo doctor that he loses sight of the human element. After all it is what a doctor can do for his patient and not what text books and research hours can do for the doctor that is the basis of the healing art. What does it avail a man if the knowledge of the Infinite be his, provided he lacks the facilities for passing

on this knowledge to the benefit of mankind? A man does not learn people from books. The exception is the proven rule with the human element. A doctor who clings to his books and forgets the citizenry is like the desert rat learning to swim from a chart and in the depths of shifting sand.

Pure joy of discovery is a pleasure not to be denied the true student of the human body, its ails and ills and faculties. But the selfishness of personal perfection in a man's chosen line should be made to yield some tithe of its debt to a mortal world, through the pleasure of service to humanity.

This service is not all in the great hospitals, nor in the crowded cities where a man presses a button for his hot water and turns a lever for his heat. Out in the backwoods districts where presidential elections have been swayed and carried more than once, dwells a large percentage of the protein elements of our nation. Men, women, children need medical care in those far away places. And just now, unless all statistics belie themselves, that is the one thing they are not receiving.

The reason is duofold and retroactive. It costs so much now for a man to acquire a medical education that he can not, in the light of self-preservation, afford to bury himself among the poor and in the wilderness. Then, too, all the gold plate and fine porcelain of the appurtenances of modern medical schools have their insidiously softening effect upon the men and women who enroll in these institutions. There is none of the old fashioned apprentice system when the "student doctor" went along into the heart of the mountains at break of day, aided in an accouchement by doing tasks in some obscure mountain cabin at which the overtrained nurse of today would shrug her shoulders, split the firewood, sobered up "the old man" if necessary, and scratched at what scraps of knowledge he could, both from watching his senior and from the abridged medical libraries of the time.

For medicine as a science, the gold studded schools have been fairy godmothers. For medical men, these institutions hold the same trespass as the old adage, "Beware of Greeks bearing gifts." For all this silk and fine linen, for all this knowledge doubly distilled and ever increasing in poignancy, medical men are paying with

much of their professional virility. One can quote appropriately the poet

"Ill fares the land to hastening ills a prey,
Where wealth accumulates and men decay."

The didactic method of teaching medicine can not be dispensed with. But it must be leavened by the stimulative method. To revert again to poetry, "The proper study of mankind is man." There must be quick and effective steps taken to revolutionize the current system of medical education, and to relieve the shortage of doctors for the middle class people in middle class communities or the science of Medicine in America will find itself bankrupt of men and cast out by those whom it would serve.

A comprehensive programme must be evolved where a fluidity of curriculum, a shrinking of expense and an appreciable reduction in the time of preparation will send forth to serve and to heal a number of practicable working physicians to supplement the thousands of skilled specialists, neither available nor necessary to at least sixty percent of the country's medical needs.

DEFECTS OF MEDICAL EDUCATION. OUR PRESENT SYSTEM IS TOPHEAVY AND IMPRACTICAL AND IS NOT PRODUCING RESULTS DESIRED

Critics of the current system of medical education take much comfort from recent words of Dr. Lyman Wilbur before the Cincinnati College of Medicine. The doctor's words will bear reprinting not once, but many times. It is significant when from the president of the A. M. A. emanates this statement:

"We need to smash the present curriculum and revamp it to bring it up to the medical requirements of modern knowledge. Pre-medical courses should be reconstructed. Present courses are in some ways ridiculous. We now take twenty-five years of the life of the best young men in the country preparing them to become physicians. We standardize the work so that they are all alike. We prescribe that they shall have so many hours of this and so many hours of that. What we need is to make courses more elastic and elective, so that men who are philosophers, chemists or psychologists, may enter the profession and bring with them their different viewpoints. The science of medicine is changing

and we cannot dam the stream at one point and prescribe certain things."

In view of Dr. Wilbur's remarks it is well to reconsider that the London Lancet only a year or so ago stated that a "young man has no right to enter upon the study of medicine unless he has an investment of \$75,000." Those figures were meant for England, but in this respect the United States has no bargain rate. It is assumed long since that to get the right sort of a medical education in the United States today, a young man must make up his mind that it will cost him at least \$40,000 at the outset and the heart of his vital years.

It was not from such men that the pioneers were recruited who built up medicine in the United States from sporadic insufficiency to the apotheosis of all that is best in research and in dispensing.

A physician must be a psychologist as well as a craftsman and scientist. Such men are born, not made, and cannot be culled like college freshmen from homes of wealth and distinction alone. A doctor without that love for his work that lends him to sacrifice himself to the ultimate degree . . . the *sine qua non* of medical efficiency to the strictest ruling . . . may be a good technician through careful training, but in the actual sense of the work, he is more or less of a failure.

Just what levers must be applied to current educational systems to effect an equilibrium, cannot be chosen in haste. But the hour cannot be delayed, for following out Dr. Wilbur's far seeing advice. One way out might be to make the study of medicine an endowed labor, as is the way with the priesthood to a certain extent. Until such a millennium can prevail, modern medical educators must manage to make friends with the Mammon of iniquity and whip into shape the elements that are in their hands. A shortening of the preparatory period, made possible by an extension of secondary education, both in the grammar and high schools will be a long step in advance. Much work done in the colleges now could be done to advantage in the high schools, just as the grade schools could care for some of the high school tasks, if this work were undertaken with a definite end in view. There would be economy all along the line. * A year of a man's wage earning life is a dead loss to him, if it must be spent in preparation instead of

production. There is a way out and it can be found and must if medical education is to progress instead of stagnate or retrogress.

ILLINOIS STATE MEDICAL SOCIETY PRELIMINARY PROGRAM

SEVENTY-FIFTH ANNUAL MEETING

Quincy, May 19, 20, 21, 1925

First Day—Tuesday Morning

9:00—Diagnostic and Demonstration Clinics of the Section on Eye, Ear, Nose and Throat, Chamber of Commerce.

First Day—Tuesday Afternoon

1:00—Call to order of each section for the reading and discussion of the papers of the program.

5:30—Adjournment for dinner.

First Day—Tuesday Evening

7:30—Call to order of the Society in General Session by the President, L. C. Taylor. Springfield, Elks Club Auditorium.

Invocation.

Address of Welcome.

Report of the Chairman of the Committee on Arrangements.

9:00—Call to order of the House of Delegates by the President, L. C. Taylor, Elks Club Auditorium.

Second Day—Wednesday Morning

8:00—Call to order of the section for the continuation of the program.

12:00—Adjournment for lunch.

Second Day—Wednesday Afternoon

1:00—Election of officers in each Section.

1:30—President's Address. L. C. Taylor, President, Illinois State Medical Society, Springfield.

2:15—Oration in Medicine. "Hippocrates or Paracelsus." Charles P. Emerson, Indianapolis, Ind., Dean and Professor of Medicine, Indiana University School of Medicine.

3:15—Oration on Surgery. "Hyperthyroidism and Peptic Ulcer—An Analogy." George W. Crile, Cleveland, Ohio, Professor of Surgery, Western Reserve University School of Medicine.

Second Day—Wednesday Evening

6:00—Alumni Banquets.

7:30—Entertainment for Members and Guests by Local Arrangement Committee.

Third Day—Thursday Morning

8:00—Call to order of the House of Delegates for the Election of Officers, Chamber of Commerce.

8:00—SYMPOSIUMS:

1. Northwestern University Medical School.

a. Dr. Sumner L. Koch, Study of the Treatment of Injuries to the Hand.

b. Dr. Wm. R. Cubbins, Acute Intestinal Obstruction.

c. Dr. Ralph B. Bettman, Surgery of Chest.

9:00—2. University of Illinois School of Medicine.

Subject: "Differential Diagnosis."

a. The Abdomen. Edward Louis Heintz, Chicago.

b. The Chest. Maurice Lewison, Chicago; Wm. J. Quigley, Chicago.

10:00—3. Loyola University School of Medicine.

Subject: "Goiter."

a. Surgical Considerations. E. L. Moorehead, Chicago.

b. Medical Considerations. Charles L. Mix, Chicago.

c. Pathological Considerations. Lloyd Arnold, Chicago.

11:00—4. Rush Medical College.

Subject and Speakers to be announced.

12:00—Adjournment for lunch.

Third Day—Thursday Afternoon

1:30—Report of the House of Delegates, Elks Club Auditorium.

Induction of the President-Elect.

SECRETARIES' CONFERENCE.

W. C. Blaine, President, Tuscola.

J. S. Templeton, Secretary, Pinckneyville.

1. Why Jefferson County Has a 100% Membership—J. W. Hamilton, Secretary Jefferson County Society, Mt. Vernon.

Discussion—E. W. Fiegenbaum, Edwardsville, Secretary Madison County Society.

2. Improving the Attendance and Interest in the County Society Meet-

ings—Ralph Graham, Monmouth, Secretary Warren County Society.

Discussion, R. R. Ferguson, Chicago, Secretary Chicago Medical Society.

3. The County Society, and County Secretary's Relation to the State Secretary—Wm. D. Chapman, Silvis, Ex-Secretary Illinois State Medical Society.

4. The Interests of the Medical Profession now before our State Legislature—J. R. Neal, Springfield, Chairman Legislative Committee.

5. What We Expect of the County Secretary the Coming Year—J. C. Krafft, Chicago, President-Elect Illinois State Medical Society.

6. The Secretaries' Conference in 1926—Harold Swanberg, Quincy,

SECTION ON MEDICINE

J. H. Hutton, Chairman, Chicago.

B. V. McClanahan, Secretary, Galesburg.

1. Fifty Years of Medical Progress—Chas. B. Johnson, Champaign.
2. Feeding the Normal Baby—F. Emerson Inks, Princeton.
Discussion opened by Dr. S. H. Kraft, Chicago.
3. Relation of Psychic Disturbances to Head Injuries—George W. Hall, Chicago.
Discussion opened by L. H. Sloan, Chicago, and C. G. Farnum, Chicago.
4. The Diagnosis of So-called Toxic, Adenoma and Exophthalmic Goiter—Wilbur L. Bowen, Peoria.
Discussion opened by J. K. P. Hawks, Bloomington.
5. Treatment of Scarlet Fever and Its Complications—Archibald Hoyne, Chicago.
Discussion opened by George Weaver, Chicago.
6. Oral Mycosis with Report of Case—Dudley W. Day, Rockford.
Discussion opened by John Tuite, Rockford.
7. Dangers and Safeguards of Alkali Treatment of Peptic Ulcers—L. C. Gatewood, Chicago.
Discussion opened by A. A. Goldsmith, Chicago.
8. Pyelitis of the New Born—Robert H. Graham, Aurora.

Discussion opened by James Wallace, Oak Park and G. L. Kaufman, Chicago.

9. Treatment of Gonorrhea—A. E. Mowry, Chicago.

Discussion opened by Damon Brown, Madison, Wis.

10. Alzheimer's Disease, with lantern slides—Frank Parsons Norbury, Jacksonville.

Discussion opened by Charles F. Read, Chicago.

11. Outlook for T. B. Patients—Henry C. Sweany, Chicago.

Discussion opened by Clarence Wheaton, Chicago.

12. The Ambulant Treatment of Hernia—G. A. McDonald, Fairfield.

Discussion opened by J. E. Dixon, Fairfield.

13. A Study of One Hundred and Twenty Male Epileptics—Thomas G. Hall and Charles F. Read, Chicago.

14. Child Hygiene, Edith B. Lowry, St. Charles.

SECTION ON SURGERY

Ben B. Baird, Chairman, Galesburg.

Philip H. Kreuscher, Secretary, Chicago

1. Some Phases of the Cancer Question—Carl E. Black, Jacksonville.

Discussion opened by Henry Schmitz, Chicago.

2. Intestinal Anastomosis From the Anatomical and Technical Standpoint—Walter J. Sullivan, Chicago.

Discussion opened by M. S. Griffith, Galesburg.

3. Traumatism of the Head—H. C. Mitchell, Carbondale.

Discussion opened by Wm. R. Cubbins, Chicago.

4. Prognosis of Intracranial Tumors—Loyal E. Davis, Chicago.

Discussion opened by Chas. P. Blair, Monmouth.

5. Plastic Repair of Defects of the Scalp—Everett P. Coleman, Canton.

Discussion opened by Carl Beck, Chicago.

6. Fractures of the Head of the Femur—Friedrick Christopher, Chicago.

Discussion opened by Ralph McReynolds, Quincy.

7. Diaphragmatic Hernia—J. W. Dryer, Aurora.

Discussion opened by C. Matthews, Chicago.

8. Thrombo-Angiitis Obliterans—John D. Claridge, Chicago.
Discussion opened by J. K. P. Hawks, Bloomington.
9. Fractures of the Neck of the Humerus—Clyde A. Finley, Galesburg.
Discussion opened by S. C. Woldenburg, Chicago.
10. Some Practical Points in the Diagnosis and Treatment of Acute Pancreatitis—John A. Wolfer, Chicago.
Discussion opened by Homer F. Moore, Rockford.
11. Reclaiming Hopeless Chest Cases; Presentation of Cases—Don Deal, Springfield.
Discussion opened by Emil Beck, Chicago.
12. Pre-operative and Post-operative Treatment of Prostatic Adenomata—Frank M. Phifer, Chicago.
Discussion opened by Ray Edgar Barrows, Cairo.

SECTION ON EYE, EAR, NOSE AND THROAT

W. R. Fringer, Chairman, Rockford

Chas. M. Robertson, Secretary, Chicago.

Diagnostic and Demonstration Clinics Tuesday, May 19, 1925.

9:00 A. M.

1. Nature and Causes of Disorders of Speech—Elmer L. Kenyon, Chicago.
2. The History of Spectacles—James E. Lebensohn, Chicago.
3. Glaucoma—Harry W. Woodruff, Joliet.

2:00 P. M.

4. Lesions of the Optic Chiasm—George F. Suker, Chicago.
5. Affections of the Ear in General Disease—George W. Boot, Chicago.
6. Surgical Treatment of Ethmoiditis—Harry L. Pollock, Chicago.

(The section banquet will be held at the Country Club Tuesday evening.)

SCIENTIFIC PROGRAM

1. Preventable Accidents in Cataract Operations—William A. Fisher, Chicago.
Discussion opened by C. C. Clement, Chicago.
2. Is Malaria an Etiologic Factor in Iritis?—R. C. Matheny, Galesburg.
Discussion opened by A. L. Adams, Jacksonville.
3. Cholesteotoma Involving the Ethmoidal

Cells and the Antrum of Highmore—G. C. Otrich, Belleville.

4. Ludwig's Angina—C. F. Yerger, Chicago.
Discussion opened by H. C. Ballenger, Chicago.
5. Defects in the Tone Scale, With Relation to Poor Spelling and Loss of Musical Tone—Frank L. Alloway, Champaign.
Discussion opened by Dr. Thomas J. Carmody, Danville.
6. Observations of the Fundus in General Paralysis of the Insane Through Administration of Hyparsamid, and a Comparison With Neo-Salvarsan. (Preliminary Report)—J. H. Roth, Kankakee.
Discussion opened by Solomon Jones, Danville.
7. Methods of Controlling Hemorrhage After Tonsillectomy—E. J. Nothenberg, Chicago.
Discussion opened by Albert H. Andrews, Chicago.
8. Focal Infections, Successes and Failures—Edwin McGinnis, Chicago.
Discussion opened by A. B. Middleton, Pontiac.
9. The Determination of Retinal Blood Pressure—James E. Lebensohn, Chicago.
Discussion opened by George F. Suker, Chicago.
10. Sarcoma of the Orbit—G. S. Duntley, Macomb.
Discussion opened by Walter Stevenson, Quincy.

SECTION ON PUBLIC HEALTH AND HYGIENE

D. J. Lynch, Chairman, Chicago.

C. H. Diehl, Secretary, Effingham.

1. Typhoid Fever Epidemic Evidently Due to Infected Oysters—C. T. Roome, Evanston.
Discussion opened by S. S. Winner, Chicago.
2. Some Public Health Problems, Revealed by the Medical Histories of High School Graduates—J. Howard Beard, Urbana, University of Illinois, Health Officer.
3. Prevention of Goiter—E. P. Sloan, Bloomington.
4. The Responsibility of the Medical Profession to the Rising Generation—June L. Edmondson, Chicago.
5. Rural Water Supplies and Sewerage—Harry F. Ferguson, Springfield, Chief Sanitary Engineer, State of Illinois.

6. The Public Health Nurse as a Factor in Medical School Inspection—Mrs. Madge D. Reiseman, R. N., Chicago.
7. The County Health Unit—Thomas Parran, Jr., Springfield, U. S. Public Health Service.
Discussion opened by C. E. Price, Robinson, Director of Crawford County Health Unit.
8. The Cancer Prevention Problem in Urology—Lewis Wine Bremerman, Chicago.
Discussion opened by Walter C. Wilhelmj, East St. Louis.
9. Factors in the Reduction of Typhoid in the City of Chicago—John Dill Robertson, Chicago, Ex-Health Commissioner of Chicago.
10. Public Health Problems as Related to Mental Diseases—Chas. F. Read, Chicago.
11. Public Health Work as Viewed by One in General Practice the Last Quarter of a Century—Jas. S. Templeton, Pinckneyville.
Discussion opened by Wm. E. Shastid, Pittsfield.
12. Public Health, and the Medical Profession in Illinois—H. N. Heflin, Kewanee.
Discussion opened by L. O. Frech, Decatur.

A REAL HEALTH SHOW FOR THE PEOPLE—BY THE PROFESSION

MANY OBSTACLES OVERCOME

FINAL SUCCESS RESTS WITH PROFESSION

The National Baby Congress and Health Exposition, sponsored and supervised by the Illinois State Medical Society, to be presented to the public May 2nd to 9th, in the American Exposition Palace, Chicago's new \$10,000,000 exposition building, has progressed to the point where it is possible to say with assurance that it will be a distinct success, especially in its ethical, educational and entertainment aspects. The Medical Committee of Supervision confidently announces that it will be a "Health Show" that will meet the approval of the medical profession and the approbation of the public.

APPROVED COMMERCIAL EXHIBITS

Great care has been exercised in the admission of commercial exhibits, work in which the Committee of the Illinois State Medical Society has been accorded the cooperation of the Bureau of

Investigation of the American Medical Association.

Elsewhere in this issue of the Journal will be found a list of approved commercial and professional concerns who will have displays in this exposition. This list will be considerably enlarged by the date of opening of the exposition.

Your Medical Committee of Supervision strongly commends these approved exhibitors and their products to the favorable consideration of all Illinois physicians. Their products are such as entitle them to admission to a strictly ethical health show and, therefore, subject to professional approval. The fact that they are participants in this exposition naturally implies professional endorsement of their products to the public.

EDUCATIONAL EXHIBITS

The educational exhibits contributed by governmental and extra-governmental health and welfare agencies will occupy, approximately, one-half of the available exhibit space and will include the displays of all organizations which may be classified as ethical and in friendly accord with the medical profession.

In this connection it is interesting to note that some of the less important *lay* health organizations have not been over-enthusiastic about "a health show run by the doctors," one or possibly two going so far as to attempt to throw obstacles in the way of its success. From the fact that these organizations depend entirely upon professional cooperation for successful functioning it is at once apparent that their attitude is not only one of bad faith, but also evidence of lack of foresight.

Among the several very important things which this Exposition will make clear is "who are and who are not real friends of the medical profession." This, your Medical Committee will make known to you in due season.

THE PROGRAM

This Exposition is designed to teach the people the ways of health. Being a show for the public it must be presented in such way as to have strong popular appeal and its lessons must be told in language that is readily understood by the layman.

The outstanding theme will be: "For long life and a happy one, keep the human machine in good working order." Naturally this implies

that personal health examinations for baby, youth and adult will be the thing most emphasized.

In order that this may be registered with the largest number in the most effective way, three great health contests, with valuable awards, have been arranged.

The Baby Health Contest, for children up to six years of age, has secured at this early date more than 3,000 entrants. With the facilities at our command, made possible through the cooperation of the Chicago Health Department, we are prepared to give upwards to 20,000 babies complete physical inspection.

The Youth Health Contest for children between the ages of six and eighteen years will be conducted along lines similar to the Baby Health Contest.

The Adult Health Contest, open to all over eighteen years of age, will be conducted with the same scrupulous attention to details. Results of examinations will be furnished and all will be urged to have their physician interpret the record to them. Advantage will be taken of the opportunity to impress the importance of periodic health examination.

All of this conforms with the cooperative program agreed to some months ago by the Illinois Manufacturers Association and the Illinois State Medical Society.

In addition there will be demonstrations of approved physical culture methods, life-saving, first aid and self defense; an "Outdoor Sports and Athletic Style Revue;" a "Carnival of Youth," featuring games, sports and play that contribute to the upbuilding of healthy youth; radio broadcasting of short health talks, moving pictures, etc., etc.

THE REAL TEST

All that remains to make this Exposition a genuine success is public attendance and your Committee is now bending all its energies in this direction. We must have your wholehearted cooperation in this respect; otherwise, our efforts to establish medical direction of "health shows" and "baby health contests" will prove futile.

It is now squarely up to the medical profession, which long has desired relief from the embarrassments and annoyances incident to political or lay directed health shows and baby conferences to come forward and assist in making this Exposition successful in every respect.

Will you do your part? We believe you will.

EXHIBITORS' DIRECTORY

NATIONAL BABY CONGRESS AND HEALTH EXPOSITION

AMERICAN EXPOSITION PALACE, CHICAGO

May 2-9, 1925

Sponsored and Supervised by the Illinois State Medical Society

Enforcing Ethical and Scientific Standards of the American Medical Association

Your Committee on Medical Supervision recommends the following Exhibitors to the favorable consideration of physicians and the public generally:

EXHIBITORS APPROVED AND ACCEPTED TO APRIL 1, 1925

AMERICAN BARLEY SALES CORPORATION: Distributors of Johnson's Pure Barley Flour for infant feeding and Cream of Barley, a breakfast cereal.

AMERICAN MEDICAL ASSOCIATION. Showing activities of the Association for education of the public. "HYGEIA" a monthly magazine of health for the laity. Bureau of Health and Public Instruction and Bureau of Investigation.

BARBEE'S BABY SCALE RENTAL BUREAU AND SALES, 159 S. State St., Chicago, Telephone Central 5164. Reliable safety tray balance scales used for our rental service.

BORDEN FARM PRODUCTS CO. OF ILLINOIS. Sole distributors in Chicago of Borden's "Selected Milk" which sets anew high standard for Chicago's milk supply.

BOWMAN DAIRY CO., Distributors of milk, cream, butter, eggs and cottage cheese. For 50 years the leaders in quality. Select the best for yours!

CALUMET, THE WORLD'S GREATEST BAKING POWDER. You need not be afraid to let the children have all the home-baked things they want if you use Calumet, because it is the purest of all leaveners.

CHICAGO DISTRICT ICE ASSOCIATION, featuring the advantages of proper refrigeration, with ice, of foods in the home; particularly in relation to its maintenance of nourishing qualities of children's foods.

CHICAGO MEDICAL SOCIETY MILK COMMISSION, Certified milk is a clean, fresh, raw, safe milk for infants and invalids.

CHICAGO DISTRICT ICE CREAM ASSOCIATION.

CHICAGO MOTOR COACH CO. For clean, comfortable, healthful transportation to and from work ride atop a Motor Bus over Chicago's finest boulevards and through the city's most beautiful parks—it provides daily recreation.

CHICAGO PORTRAIT PHOTOGRAPHERS, Photographs of your family and yourself are lasting memories. Have yours taken.

CHICAGO WHOLESALE FISH & OYSTER DEALERS AS-

SOCIATION, exhibiting research data relative to food values of fish, oysters and seafoods.

CHIPPewa SPRING WATER COMPANY, 527 Roosevelt Road, Distributors Chippewa Natural Spring Water, the Purest in the World; Chippewa Ginger Ale, Root Beer and Carbonated Water.

CHRISTIANSEN BROS. DAIRY Co., Where cleanliness is permanent. We invite your inspection. Learn why a bottle of safe milk is a bottle of health.

CONTINENTAL SCALE Co., Chicago. Health Scales. Your weight is an index to your health. Every well regulated home should have thoroughly dependable scales such as we make.

CORCORAN MANUFACTURING COMPANY, Cincinnati, O. Manufacturers of "Not-a-Toy." Health and Happiness for Baby, relief from care for Mother.

CORN PRODUCTS REFINING COMPANY, Manufacturers of Karo, Mazola, Argo, Kingsfords and Linit Starches.

CRANE Co., exhibiting a twice-fired vitreous lavatory, a dental lavatory, a baby's bath and a shower bath.

DAIRY DRINK Co., 2825 Lexington St., Chicago. Pure Wholesome milk contributes to health. It becomes more palatable and nutritious when combined with chocolate. Drink "D. D."

ERNEST MONNIER, INC., Boston, Mass. U. S. Agent for Ingram's Transparent Nipples.

EARNSHAW KNITTING COMPANY, "VANTA BABY GARMENTS," manufactured without pins or buttons, guaranteed non-shrinkable; unnecessary to turn baby to put on garments. Recommended by doctors, nurses and hospitals.

FOREST GLEN CREAMERY Co. A recipe for pink cheeks and sturdy little bodies. Give your youngsters Forest Glen Milk—Guaranteed Pure. 3737 Southport Ave. Lakeview 1158.

THE HOOVER COMPANY. Oldest and largest makers of electric cleaners. More than a million and a half satisfied users. Only "The Hoover Beats As It Sweeps As It Cleans."

HORLICK'S MALTED MILK Co., Racine, Wis. Will exhibit "Horlick's" the ORIGINAL Malted Milk for infants, invalids and convalescents. Also Horlick's Food, their maltose-dextrin milk modifier.

HYDROX CORPORATION. Main office and plant 24th St., at the Lake, Chicago. Manufacturers of Hydrox Ice Cream (purer because carbonated) and Hydrox Gingerale and other carbonated beverages.

ILLINOIS BELL TELEPHONE Co.

J. G. INGRAM & SON, London, England. Manufacturers of Ingram's Transparent Nipples, the standard all over the world. Ernest Monnier, Inc., Boston, Mass. United States agents.

THE JELL-O Co., Inc., LeRoy, N. Y., Manufacturers of Jell-O and D-Zerta, (a jelly powder for diabetics). Both put up in commercial and institution packages.

JAS. S. KIRK & Co., Manufacturers of the famous "Jap Rose Health and Beauty Soap," Juvenile Baby Bath Castile, Green Soap for physicians and surgeons, and other fine toilet and household soaps.

J. L. KRAFT & BROS. CHEESE COMPANY. Manufacturers of Kraft Cheese in tins and in foil.

METROPOLITAN LIFE INSURANCE Co.

IRA J. MIX DAIRY COMPANY. Mix Mix's milk with your menu. From Country to You in Glass. Call Victory 1040.

NATIONAL MILK COMPANY. Distributors of high grade milk, cream and dairy products.

THE NON-PTOSIS SERVICE. Stands for better health and higher spirits. The support produced in any ptosis garment is a brace that has no equal.

NORTHWESTERN STEEL & IRON WORKS. Manufacturers of National Pressure Cookers. They save time and money and are endorsed by leading domestic science experts.

THE ORIGINAL ARCHAMBAULT method of French cleaning includes sterilization of garments which resists bacteria and promotes health. The health of civilized nations depends upon intelligent use of its advantages.

PELOUZE MANUFACTURING Co., 232 East Ohio Street, Chicago, Illinois. Manufacturers of Infant, Dietetic, Photographic, Household, Postal and Dairy Scales.

PREMIER SERVICE COMPANY. Manufacturers of Premier Duplex Vacuum Cleaners. Branches and service stations in principal cities. Cleans floors and rugs for baby's sake.

THE SANITARY DISTRICT OF CHICAGO, Working exhibit of sewage disposal plants in operation. General exhibit of the Sanitary District's activities. Rest Room.

SCHOENHOFEN COMPANY, Manufacturers of Edelweiss Light and Dark Beer (non-alcoholic), Edelweiss Tonic and Green River.

SETHNESS COMPANY, Chicago, Manufacturers of "Drinkmor," the appetizing hunger and thirst satisfying Dairy Drink. A scientific, dietetic preparation combining whole pasteurized milk, granulated cane sugar, pure barley malt and chocolate.

SIDNEY WANZER & SONS—Chicago's Pioneer Purveyors of Dairy Products—established 1857. Milk from inspected herds on carefully selected farms.

CHAS. A. STEVENS. Breeder of Fine Toggenburg Milk Goats, Exhibiting for Brook Hill Farm, producers of Brook Hill Certified Milk.

STANDARD CAP & SEAL CORP., Our Hood Seals protect your milk and cream from flies, fingers, dirt and germs. Hood Sealed Milk is cleaner, richer, sweeter milk.

STOVER Co., Distributors of "Frigidaire" electric refrigeration.

WIELAND DAIRY Co., Distributors of Milk, Cream, Butter, Eggs and Cottage Cheese. From country to you in glass. For health's sake, use Wieland's.

A POME

Here lies my wife, Samantha Proctor,
Who ketched a cold but would not doctor.
She couldn't stay, she had to go—
Praise God from Whom all blessings flow.

—Mascot.

Mac—I'm smoking a terrible lot of cigars lately!
Jack—You certainly are, if that's one of them!
Columbia Jester.

SOLVING THE NURSE PROBLEM

MEDICAL SOCIETY OF THE COUNTY OF ERIE, NEW YORK

REPORT OF COMMITTEE ON NURSE QUESTION

SUBMITTED TO AND ADOPTED BY THE MEDICAL
SOCIETY OF THE COUNTY OF ERIE AT ITS
REGULAR MEETING, MARCH 16, 1925

To the President and Members of the Society:

After careful consideration of the various factors entering into the so-called nurse situation as it exists today in Erie County, and throughout the State of New York as well, your Committee desires to submit this report, covering the following points:

1. What, if any, are the just grounds for criticism of the present status of the registered nurse with relation to the public and to the physician?

2. What are the underlying causes of the unsatisfactory conditions that we find not only evident but increasingly prevalent?

3. What definite remedies can we recommend to relieve the situation?

I—GROUNDS FOR CRITICISM

1. *Scarcity of Nurses.* Evidence of the claim that there are insufficient nurses to supply the demands of the sick public is presented so frequently both by physicians and laymen requiring nursing service as to thoroughly substantiate the claim in the minds of the Committee. This more or less constant shortage becomes acute during epidemics or seasonal illness.

2. *Nursing in Private Homes.* Testimony of physicians and laymen is abundant evidence of the increasing unwillingness of a large number of Registered Nurses to accept calls to nurse in private homes.

3. *The Twelve-Hour Schedule.* Your Committee realizes that there are valid arguments advanced on both sides of the question of limiting the nurse's time on duty to 12 hours. Without entering into a discussion of the merits of this question your Committee is convinced that one result of this schedule is to work a great financial hardship on the sick public, the great majority of whom are unable to meet the expense involved.

Especially burdensome is this system on maternity patients. Your Committee believes that the great increase in expense for nursing in these cases tends to make it almost prohibitive for people of moderate means to accept parenthood, and so constitutes a serious menace to the birth rate among the very class in which a high birth rate is most desirable.

4. Your Committee finds evidence of an increasing tendency on the part of some Registered Nurses to exercise the functions of a physician rather than a nurse in their relations with patients. While we believe that this by no means holds as a criticism of any but a minority of nurses of today, we are im-

pressed with the apparent growth of this attitude of mind on the part of many nurses.

II—UNDERLYING CAUSES OF CONDITIONS CRITICISED

1. An increasingly large number of nurses are being drawn into special lines of work other than bedside care of the sick—such as Industrial dispensaries, public health nursing, institutional positions, etc.

2. Under the present system of training, emphasis is laid on the larger sphere of the professional woman. While your Committee would be the last to depreciate the expansion of any woman's sphere of usefulness, the practical fact remains that such aspirations on the part of nurses seem to result in a diminished enthusiasm for the performance of the real function of a nurse, viz., caring for the comfort of her patient and executing the orders of the physician.

3. The expanding curriculum further serves to educate nurses beyond the point of practical usefulness in their actual work, engendering in many the desire to exercise the function of one who treats the patient rather than one who cares for the ailing. In other words such nurses are not content, on the one hand, to play true their roles of the physician's representative on the case, and, on the other hand, many of them are misled into thinking that the general smattering of medical education which they receive renders them competent to practice medicine rather than nursing.

4. The present high requirements as to preliminary education of a pupil nurse, viz., a high school course, together with a three years course of hospital training, makes for dissatisfaction with the financial returns on the investment of time and money necessary to secure such training.

5. The preliminary high school course requirement serves to debar many young women of high character and ability such as formerly chose nursing as a calling from sheer love of the work. The number of applicants for training is thus greatly limited, with the resultant scarcity of women in the nursing ranks.

III—SUGGESTED REMEDIES

1. Your Committee unhesitatingly recommends reducing the preliminary requirements of applicants for nurse training to a grammar school education—placing emphasis more on character, ability and enthusiasm of the applicant for this special field of work.

2. We would modify the curriculum in training schools so as to require two years of practical bedside training, limiting didactic instruction to the elements of anatomy, physiology, disease causation, modes of infection, practical asepsis, etc.

3. We advocate granting a diploma at the end of the second year, graduating the pupil as a Qualified Nurse, with the privilege of registering and using the degree of R. Q. N.—Registered Qualified Nurse.

The idea of creating the class of Qualified Nurses is to clear the curriculum of useless advanced scientific specialties, to shorten the unnecessarily long period of training and to readjust the education to the necessities of medical and surgical practice.

4. We would arrange the curriculum for a third

year of training for those who so elect—consisting of more advanced work in those studies necessary to prepare them for public health nursing, institutional work and other activities than actual bedside care of the sick. At the end of the third year, according to this plan, a diploma might be granted as Master Nurse, with the privilege of registering with the Regents and using the degree of R. M. N.—Registered Master Nurse.

To be eligible for this advanced degree the applicant must have had a High School Education. Her first two years of training would be the same as that of applicants for a diploma as Qualified Nurse, but her third year would be advanced technical, administrative or specialty courses, as the candidate for the degree might elect.

5. As a concrete suggestion of how this general plan might be carried out your committee submits the following tentative curriculum, giving in one column the hours now required in the various subjects taught, and in a second column the suggested changes to be made.

SUGGESTED CHANGES IN NURSING SCHOOL CURRICULUM, WITH PRESENT PRESCRIBED HOURS

1ST YEAR		
1st Semester.	Prescribed	Suggested
Anatomy and Physiology.....	48	36
Bacteriology	16	4
Personal Hygiene	8	6
Chemistry	16	4
Nutrition and Cookery.....	24	24
Hospital Housekeeping	8	8
Drugs and Solutions.....	16	6
Elementary Nursing	64	64
Historical, Ethical and Social Basis of Nursing.....
Introduction to Private Nursing.	8	3

208 h. 155 h. (Save 53 h.
(12 h. per week) (9 h. per week)

2nd Semester.		
Elements Pathology	8	6
Advanced Nursing	32	24
Materia Medica and Therapeutics	16	8
Diet in Disease	8	6
Ethics	8	0 Given above
Massage	0	8

72 h. 52 h. (Save 20 h.
(5 h. per week) (3¾ h. per week)

2ND YEAR—JUNIOR

1st Semester.		
Nursing in General—Medical Diseases	16	16
Nursing in General—Surgical Diseases	16	16
Nursing in General—Infant Feeding	16	8

48 h. 40 h. (Save 8 h.)

Gynecological Nursing	0	0
2nd Semester.		
Nursing in Communicable Diseases.	8	8
Operating Room Technique.....	8	8
Obstetrical Nursing	16	16
Eye, Ear, Nose and Throat Nursing	8	2
Public Sanitation	8	2

48 h. 36 h.
(3½ h. per week) (2½ h. per week)

This saves about 97 hours in the first two years. To replace some of these unnecessary hours there could be added some of the practical 3rd year work, e. g.,

Emergency Nursing and First aid.	8	8
Occupational, Skin and Venereal Diseases	8	4
Hydrotherapy, etc., etc., etc.....	8	8

3RD YEAR—SENIOR

(Two or three of the courses of the third year could be added to the second year to meet special conditions in training a Registered Qualified Nurse.)

The pupil wishing to take a third year leading to the degree of Registered Master Nurse might be allowed an elective course, choosing her subjects from some such list as the following, according to her individual leaning toward some special line of work.

1. Nervous and Mental Diseases.
2. Occupational Therapy.
3. Administration Problems.
4. Laboratory Technique.
5. Anaesthesia.
6. Modern Social Conditions.
7. Field Work, Social Service Work, Public Welfare Work.
8. Tuberculosis Nursing.
9. Nursing Mentally Defective Children.
10. Gynecological Nursing.
11. Obstetrical Nursing.
12. Psychology, etc., etc., etc.

Finally, your committee wishes to disclaim any idea of personal criticism of any or all Registered Nurses now practising their noble profession. The criticisms herein contained are directed only at the present system of nurse-training, for which ill-judged system no responsibility or blame can attach to those who have been trained under its administration.

The whole matter can be reduced to very simple terms. WHAT IS THE AIM OF NURSE TRAINING? Is it to train nurses, as the term implies,—that is, women whose first and chief mission is to care for the man, woman or child who is sick and in need of her care? Or is the aim to impart in a most superficial manner a quasi medical education which is utterly insufficient to qualify its recipient for medical practice, but serves only to weary their brains with a mass of undigested medical facts?

Should not nurse-training strive mainly to develop the pupil's powers of intelligent observation, to inculcate a sense of responsibility for the execution of the physician's orders, and, last but not least, develop to the highest degree her skill in ministering to the sick?

Your committee believes that it should.

Respectfully submitted,

COMMITTEE ON NURSE QUESTION,
GEORGE R. CRITCHLOW, A.B., M.D., F.A.C.S.,
Chairman,
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DISTRICT OF COLUMBIA GETS DISEASE CONTROL LAW

After five years of legislative history the venereal disease control bill for the District of Columbia was signed by the President on February 26. In spite of the fact that the bill has been on the verge of enactment at several times in the past, it did not become law until the closing days of the last session of the 68th Congress, although every state in the Union has had some sort of a venereal disease control measure since 1921. The fact that sentiment for the Gilbert Bill persisted for so long a time in the face of repeated legislative delays goes to show that the need for such a measure was keenly felt by residents of the District.

Under the provisions of the law, the chief officer of every hospital, dispensary, sanatorium and penal institution must report to the health department cases of venereal disease as soon as they are discovered. The judges of the juvenile and criminal courts must report any persons appearing before them who are suspected of being venereally infected. Private physicians are required to make a similar report within ten days after a case has come under their control. The District law provides that these reports be kept confidential by the health officer and his agents. According to the Division of Venereal Diseases of the United States Public Health Service, all of the states now have regulations requiring such reporting of cases of venereal disease.

In common with the regulations of thirty-five states, the District act provides that prostitutes, keepers of disorderly houses and persons convicted of any sexual crime are presumed to be a source of infection and are subject to examination. The health officer is required to employ for the protection of public health all such regulatory measures as may be necessary to prevent the spread of these diseases. He is also required to use every available means to ascertain the existence of venereal disease and the source of the infection. Persons against whom there is no criminal charge, but who are reasonably suspected of being infected, may be examined by the health officer upon consent of the parties. If, however, such persons withhold consent, an examination may be ordered by the court. A violation of such an order by continued refusal is punishable as contempt of court. In forty-three of the states the health officer is given express power to quarantine persons known to be infected with venereal disease. Nine of these states go even further, allowing the officer to placard the premises under certain conditions.

Twenty-nine states have laws which prohibit the advertising of preparations for the treatment of venereal disease in lay publications, or which prevent the sale of such medicine to a lay person except on the prescription of a licensed physician. A like clause exists in the District law. Nineteen states have found it advisable to regulate the employment of the venereally diseased, and in the District of Columbia the law prohibits persons suffering from venereal disease, in a form likely to be a source of infection to others,

from being employed as barbers, masseurs, cooks, bakers or other producers or handlers of food or drink or from working in any other occupation in which the disease might endanger the public health.

Under the new law, it is compulsory upon physicians to advise their patients as to measures which they should take to prevent the spread of these diseases. They are also required to report all of the indigent cases which may come to their notice. The board of health is under obligation to take care of such cases and to see that they are given the proper treatment according to approved standards. Practically all of the states have some way of taking care of such indigent cases.—*U. S. P. H. S. Bulletin.*

THE BEST WAY TO RID THE LAND OF QUACKS IS TO REPLACE CHARLATANS WITH PHYSICIANS

One of the best methods of ridding the country of the curse of quacks and charlatans as prevalent and persistent as "pusley", will be to use the time-honored remedy of fighting fire with fire. One good, reliable, old-fashioned doctor set down in the highways and byways where now reputable physicians are scarce as the proverbial hen's teeth, can do more to rout the fakes than tons of propaganda. A man has to take what he can get. If he can't get a doctor, he employs a charlatan or a mail-order nostrum. This vicious circle is easily transformed into a halo of light and healing. Today's cry from Macedonia is "Give us doctors." This can be done only when the supply is augmented by a corps of capable general men to replace the rapidly disappearing "family practitioner." Such capable general men cannot be produced until the expense of medical education is cut drastically. For the highly skilled specialists, who are needed as much as the general men, though not in such numbers, this cut may not be feasible. But every sick citizen is not in need of a hospital, an anesthetic or a savant. Some clean, simple old-fashioned doctoring is about all that the average man requires about three or four times a year. He is in too much awe as a rule to seek this from the savant, and probably would stagger through a multitude of expensive tests, that would swamp him in his search for a cure for, well let us say a felon. When he can't find a plain physician the average man takes to the charlatan. The route of the remedial trail is evident. Who will be the first to blaze it? What school will first see the light to the enduring benefit of the practice of medicine and those whom this profession serves?

DOCTORS CANNOT AFFORD TO REMAIN OUTSIDE THE ORGANIZATION

It is difficult to imagine how a physician can desire to remain outside of organized medicine. The advantages of membership are many and the expense is trifling. In some States, membership in the county, state, national organizations can be obtained for not more than \$1.00 a month, and the disinterested observer would presume that every physician would be anxious to better his professional standing in a community by belonging to the proper organizations, even if for nothing else than for the protection of his professional standards. It should be regarded as good insurance with premiums at a very low cost.

Why should the individual physician belong to his county, state and national medical organizations? We present six answers to this question, each of which, we believe, is sufficient to cause a man to make the investment which would enable him to become definitely identified with the very best there is in the medical profession:

1. To have a part in organized effort for the promotion of the science and art of medicine and the betterment of public health.
2. To take advantage of opportunities offered in the medical society for individual scientific improvement.

MORE BUREAUCRATIC PROPAGANDA— CHILD LABOR AMENDMENT

The attempt to amend the Constitution of the United States for the purpose of invading American homes and controlling the child is another effort on the part of propagandists to fasten upon the people all the baneful results attendant upon bureaucratic policies. Miss Julia Lathrop, who is actively engaged in propaganda work and whose efforts may be questioned, recently appeared before the Grand Rapids Rotary Club sponsoring the enactment of the proposed amendment. At a subsequent meeting of the club one of the editorial writers of the Press, Mr. Woodruff, replied to her argument. Inasmuch as the subject is one of interest to the profession we are grateful for being able to publish this reply which is as follows:

Perhaps there is no better introduction to the subject than to recall that Miss Lathrop, a highly educated, most intelligent and shrewd advocate, stood upon this platform three weeks ago and appeared before another local audience the same night in the defense of the proposed twentieth amendment, emphasizing that it was in no sense a Bolshevik measure, that it had the support of a long list of women's clubs and the American Federation of Labor, that it was the logical successor to two child labor acts declared unconstitutional by the supreme court, and that it was the sort of change the fathers of the Constitution hoped we, their heirs and successors, would make when their imperfect document came down to us.

It is one of the oldest devices of debaters to concentrate upon the weakest points of the opposition. Miss Lathrop rang all the changes upon the charge, made in the course of the recent referendum campaign

in Massachusetts, that this was a "Red" or "Radical" or "Socialist" measure. In the heat of a campaign and for the political effect of catchwords many points are made which would not be offered quietly in reasonable discussion. Miss Lathrop is absolutely right in her contention that the child labor amendment is under no conviction of "Radicalism" merely because Mrs. Florence Kelly, its initiator, was once married to a person of Russian extraction. Neither is it necessarily "Radical" because Victor Berger happened to like it; nor because Owen Lovejoy, head of the National Child Labor committee, happened to be a friend of Gene Debs.

In fact, it is a waste of time even to call it "Socialistic." Issues must stand on their own feet in intelligent discussion, not be thrown out or accepted because of some party tag attached to them. If we were to catalogue all the reforms throughout recent American political history which had the platform support of the Socialist party we should not know where to call a halt. For a few examples, there are the women's suffrage amendment, higher income and inheritance taxes, workingmen's compensation, factory safety inspection, and federal waterpower control. Moreover, if the grant of power contained in the twentieth amendment—the power to limit, regulate and prohibit the labor of persons under eighteen years of age—is in itself Socialistic, then obviously every state in the Union has a constitution honeycombed with Socialism. *For there is not a state without the power, at this very day, to limit, regulate and prohibit the labor of minors all the way up to twenty-one.*

However, it is absolutely unnecessary to tar the proposed twentieth amendment with the pitch of Socialism in order to condemn it in the minds of any American devoted to the historic traditions of this nation. In the first place, it is being borne in upon our federal union as time goes on and government pries increasingly into business that federal or centralized regulation of private life should be substituted for state and local regulation only in the face of the most obvious and overwhelming necessity. I shall attempt to demonstrate to this fact, and then to show that the child labor amendment is offered in answer to no such vital public demand, that its evils one by one are being met, and that as a matter of fact it is of that particular type of proprietary interference which least well adapts itself to federal control. In short, that there is no call for us to make an exception to the rule of keeping the national government in its own sphere and the states in theirs.

Miss Lathrop was particularly careful to point out that the constitutional fathers, as proof that they thought their Constitution needed amendment, changed it themselves no less than ten times in the first session of congress. *But Miss Lathrop was equally careful to overlook the fact that every one of these first ten amendments sought to protect the average American citizen against precisely the sort of regulation from Washington that the child labor amendment would permit.* Each of the ten secured the individual in the free exercise of his conscience and his opinions, or in

the conduct of his private pursuit of wealth and happiness, or in the regulation of his family. *He was guarded by them against undue searches, seizures, quarterings, religious persecutions, fines, imprisonments, confiscations and the like; and, finally, assured that whatever was done outside the functions strictly reserved to congress would be done by his own state, and by neighbors closely enough acquainted with conditions so that he would be reasonably sure of just and sensible treatment. The police powers of the nation, in other words, were reserved to the states.*

When we break into this reserved sphere of state action with a federal police statute, we substitute a distant, vague authority, largely and necessarily unacquainted with local conditions, for a state authority which has lived with and exercised police power over those conditions and whose enforcing officers are locally known and respected. We put in the hands of a great bureau at Washington powers and duties too large and intricate by far to be properly executed—and duties which often will not be executed where local sentiment objects to their application. As one writer has put it, "The government at Washington cannot successfully reach into the localities and enforce a legal standard of personal living which the bulk of the people of that locality do not support." Moreover, this action undermines that sense of local responsibility upon which the character and vitality of American democracy has always rested. The political body needs just as much exercise as the physical.

When Chief Justice William Howard Taft delivered the supreme court opinion declaring the second congressional child labor law unconstitutional he made the significant statement: "In the maintenance of local self-government, on the one hand, and the national power, on the other, our country has been able to endure and prosper for nearly a century and a half." The reminder that a just balance between these coordinate agencies, the nation and the state, is necessary to our national welfare is *most decidedly needed in these days when every reformer is running to congress to get a law, a policeman and a club.*

Only last month President Coolidge remarked: "The efficiency of federal operations is impaired as their scope is unduly enlarged. The efficiency of state governments is impaired as they relinquish and turn over to the federal government responsibilities which are rightfully theirs."

If we accept, then, as a fact the statement that regulation of local affairs from Washington is unwise except in cases of the most pressing necessity, can we say that the need of a child labor amendment is of this exceptional type?

Let us admit, if you will, that there are some 185,000 persons under 16 in the United States engaged in industrial employment—some of them in noninjurious occupations to be sure, out of school hours and only part time, some of them cases where further schooling is futile and a sensible manual apprenticeship the best possible education. Let us admit that in a proportion of these cases the state is to blame, health suffers, and children are actually in some danger from which it

might seem the states had fallen down on the job. And then let us turn back the leaves of the calendar twelve years, and consider a compilation recently made of the contrasts between child labor legislation then and today.

In 1912, only twenty-one states prohibited the labor of children under fourteen in factories and stores. Today forty-five states or all but three, prohibit it. In 1912 only twenty-one states prohibited the labor of children under sixteen in dangerous trades. Today nearly all states prohibit it, and many rise above that standard. States limiting the industrial work of children to eight hours a day have doubled in numbers. There are now thirty-one such states. All but five states now have some prohibition of night work. The educational requirement has been raised in many states, and nearly all have some educational minimum. Ten years ago less than half the states had a physical test to determine whether children might work. All but nine have it today. Ten years ago only six states required a physician to pass on a child's fitness to work. Today twenty-two states require it.

We may be reasonably certain that progress as marked as this will continue; that states will continue to be shamed and persuaded into meeting the genuine evils of child labor for themselves. The amendment might and might not speed the time when the few backward states would come up and toe the mark. In exchange for this brief setting forward of anti-child-labor effectiveness, actually required in any pressing sense in only three states of the Union, all the *states together would be subjected to the inroads of that particularly exasperating and unreasonable species of trouble maker, the federal investigator; a bureau at Washington would put a building and expand its officers, hire statisticians and add to the cost of government; another batch of pestiferous little cases would be dumped on the federal courts, whose dockets are already clogged with a mass of prohibition cases rendering the administration of substantial justice in important matters almost impossible. Meantime, with the removal of the sources of income from destitute families, from widows unable to find work and from children in states possessing no equipment to keep them in school until the age of sixteen, new responsibilities might be expected to crowd upon the federal government. The dole and subsidy system to pension mothers and provide standard schools, would be a more or less natural demand. Federal scholarships and federal regulation of education are the next step. If we wish to be sure not to reach this extravagant and costly stage, we had better not take the first.*

As it is not only feasible, but in accord with American constitutional tradition to leave police activities to the states, why let ourselves in for a further federal usurpation of these activities? *In the long run is not the cure worse than the evil we desire to eradicate?* And would not a little time cure it anyway? That is the question I would leave with you.

It is an easy matter for advocates like Miss Lathrop to stand upon a platform and laugh away the suggestion that congress might go to all the excesses per-

mitted by this blanket amendment, or even to avail itself of any considerable part of them. But it is not so easy to find ground for this confidence in the actual record of congress.

Congress when legislating in such matters is peculiarly the prey of the half-baked reformer, the easy meat of the forceful minority. It sits apart from our daily life, and no such watch and ward attends its daily action as is vigilantly turned upon every movement of a state legislature. *When it was determined that congress possessed the constitutional right to assess income taxes, no one in his right mind would have supposed that in the space of a few years congress would interpret this permission to justify the spreading of a man's business secrets before his social peers and business competitors by means of the publicity of returns. Yet the thing has happened.* In the face of congress' actual record Miss Lathrop's childlike trust in its temperance and self control is sanguine to say the least.

There is only one *path of safety and of political wisdom—the path which will spare congress even the temptation.* In the long run the cure proposed would be more of a burden than the evil we wish to eradicate. And their progress of recent years offers ample ground for the belief that child labor will be brought by the states within its proper limits without the assistance of a long arm stretched from Washington to do their work for them.—*J. M. S. M. S., Feb., 1925.*

SOMETHING IS FUNDAMENTALLY THE MATTER WITH THE NATIONAL DRIVE FOR THE CHILD LABOR LAW

William A. McKeever, A.M., LL.D., in January 24, 1925, issue of the *Dearborn Independent* has the following relative to the Child Labor Amendment:

After more than a quarter-century of experience as an educator, I am free to say that there is something fundamentally the matter with the national drive for the child labor law.

Unfortunately there is connected with it a sentiment of mushy mollycoddism and a *threat of national ennui.*

What we need today far more is a *national movement for teaching all the growing young to work*—not to produce money, or goods, or gain, but character.

The typical high school age of today is a generation of soft, "baby beef" physically—under-exercised, under-muscled and over-fatigued by poison toxins which percolate into the tissues of their soft, loose flesh.

They deserve a better fate at our hands.

But instead of giving the physical development, the training in common industry which their growing bodies require, we head them in the opposite direction.

We are teaching them to loaf and to regard it a national crime for anyone to ask them to work.

The ability to work with the hands and the whole body is one of the God-given prerogatives of the young. Experience in the great trunk-line industries, such as producing food from the soil, manufacturing as an amateur, handling and transporting goods, bartering in

the common materials of business traffic—that is what every growing boy and girl in America needs today far more than they need *national laws to keep them from learning to work.*

If any reader of this article can do anything worth while, or see America as fundamentally a nation of industry and sacrifice and unselfish co-operation, then I know that that reader's early career was one of training in the performance of common work.

You cannot break a bay to work after he is sixteen and make him like it. You cannot even season and strengthen the fiber of his body so that he can endure work happily and resist fatigue, if you permit him to reach sixteen as an undeveloped idler. His spongy tissues will carry constantly an over-amount of poison toxins. He will dread common work. He will regard it as an interference with his rights! He will look for a soft berth, for graft, for something for nothing. He will look upon schooling, as so many of our young do today, as a system that is successful only as it enables one to get by without work.

Mark you, *I am unalterably opposed to commercialized child labor; so is everybody else.* What we need is a *national child labor committee that will teach all children to work exactly enough to meet the suffering requirements of character development.* Children need to be taught to work for the sake of their health and happiness and self-reliance. They need to learn to work with their hands to experience that delightful sense of belonging to common humanity.

Not sixteen, but six, is the right age to begin to teach a child to work. We need a schedule of such training. I made one of this kind, and I hope soon to attempt a better.

A six-year-old should work about ten minutes a day.

A sixteen-year-old should work four to eight hours at common labor during the vacation of three months, and about two hours a day during the nine school months. Such an arrangement for all children alike would in a generation or two give us a new race of Americans in fiber resembling the pioneers who planted the nation.

America is destined to stand or fall in proportion as she stakes her future on the inheritances latent in the ordinary child of the common parenthood. God will continue to send us a few geniuses—a sprinkling of Lincolns, Edisons, and so on—and these will continue to be born among the lowly and work their way to the front. But it is the great body of ordinary children, reared in ordinary homes, who learn early to endure some privations, who rise from their beds fresh and alert at morning and become inured to a reasonable amount of industry.

We have more children today who are retarded industrially than are retarded intellectually. We have a generation of city sixteen-year-olds who are not more than six in their knowledge and ability to work with their hands.

I wish it were practicable to make every sixteen-year-old boy in the land a present of a cord of hardwood and a brand new ax, with the arrangement that he should cut the wood into stove lengths. I would

tie wood-sawing up with his parties, his picnics, his music, his merriment, his girls, in such a manner that he would swallow the whole dose as a delightful mixture. Then, in due time, he would have in his make-up the three youthful "graces"—

Mind, Muscle and Manhood.

LET FATHERS AND MOTHERS BE HEARD

THE TWENTIETH AMENDMENT TO THE CON-
STITUTION MANIFESTLY A SOVIET MEASURE.
SHOULD 2,316 PERSONS BE ABLE TO
CHANGE THE CONSTITUTION OF
THIS COUNTRY?

Iredell Meares of the North Carolina and District of Columbia bars.

In the January 24, 1925, issue of the *Dearborn Independent* is quoted as follows:

It is the declaration of the constitution of North Carolina that "a frequent recurrence to fundamental principles is essential to preserve the blessings of liberty."

Similar declarations will be found in the bill of rights and constitutions of the several states, in principle, if not in language, and in the Virginia Declaration of Rights, which antedated them. The recent discussion about the Constitution, amendments thereto, and the Federal courts has conduced to a better understanding and wider knowledge of the fundamental bases upon which rest our governments, both state and national, and it is to be welcomed, whatever the contrariety of opinions that may have been expressed.

Only recently the statement was made by a prominent lawyer of New York that the Constitution of the United States does not prescribe any provision for a referendum to the people on the question of any amendment to that instrument. It is true that it does not so prescribe by way of a popular vote of the mass of the American electors, voting individually and directly on the issue. It does, however, in effect, prescribe a mode of submitting a question of amendment to the people of each of the several states.

A POWERFUL MINORITY

Article V of the Constitution of the United States declares that amendments shall be valid "when ratified by three-fourths of the Legislatures of the several States, or by conventions in three-fourths thereof, as the one or the other mode of ratification may be proposed by the Congress." It is apparent that the Congress in submitting any amendment to the states for ratification or rejection may prescribe either one of two modes of procedure:

1. It may cause it to be submitted to the legislatures of the several states.

2. It may cause it to be submitted to a convention of the people of each of the several states.

The mode which Congress prescribes is exclusive and must be followed by the states, but there is a vast difference between the two modes as a means of registering the popular will.

The legislatures of three-fourths of the states might adopt an amendment without the people of the state having the matter discussed before them and public opinion becoming crystallized, as their members might have been elected, without regard to the issue, and prior to Congress having passed the act submitting it to the states for ratification or rejection.

It is interesting to note that all the members of all the legislatures of 48 states number 7,403, and of these 2,316 members constitute a majority in the legislatures in 36 or three-fourths of the several states, who can amend the Constitution, if an amendment be submitted to the legislatures instead of to the conventions of the people of the several states, without the proposition having been discussed before the people and their will ascertained.

It is rather startling to contemplate that 2,316 persons, members of the legislatures of the several states, can change the organic law of this nation of upward of 115,000,000 persons, without a reference of the question to them, by amendment in the manner indicated. Even if, by this mode, the proposed amendment were adopted unanimously by every legislature of all the states in this Union, the fact is that it would then be incorporated in the Constitution of the United States by the vote of only 7,403 persons, who may be members of the state legislatures at the time, and who may or may not represent the wishes of the 115,000,000 inhabitants and citizens of this country.

On the contrary, if Congress should submit any proposed amendment to a convention of the people in each of the several states, then, to such convention called specially to consider it, and either to ratify or reject it, delegates would have to be elected by the people, at an election called for the purpose, and candidates for the convention would have to take a public stand for or against ratification, discussing the issue before the people who would vote for such candidates as represented their views; thus, in effect, we would get an expression of the people's will as to the proposed amendment—virtually and practically as the result of a referendum in each state.

GOVERNMENT BY THE PEOPLE—

It was through *conventions* that the states originally ratified the Constitution, as will be seen by reference to the United States statutes or Elliot's Debates; in fact, the convention of 1787, which framed the Constitution, recommended to the Congress that it be submitted for ratification or rejection to "a convention of delegates chosen in each State by the people thereof, under the recommendation of its Legislature, for their assent and ratification; and that each convention consenting and ratifying the same should give notice thereof to the United States in Congress assembled"; and the Congress, then existing under the Confederation of the States prior to the adoption of the Constitution, directed the Constitution so framed to "be transmitted to the several Legislatures in order to be submitted to a convention of the delegates chosen in each State by the people thereof, in conformity to the resolves of the convention."

Chief Justice Marshall, in the case of *McCulloch vs.*

Maryland (4 Wheat 403) said: (The italics are ours.)

"This mode of proceeding was adopted: and by the convention, by Congress, and by the state legislatures, the instrument was submitted to the people. *They acted upon it in the only manner in which they can act safely, effectively and wisely on such a subject, by assembling in conventions.* It is true, they assembled in their several states—and where else should they have assembled? No political dreamer was ever wild enough to think of breaking down the lines which separate the states, and of compounding the American people into one common mass. Of consequence, when they act, they act in their states. But the measures they adopt do not, on that account, cease to be the measures of the people themselves."

"It is, sir," said Daniel Webster, "the people's Constitution, the people's Government; made for the people; made by the people; and answerable to the people."

If the original instrument were submitted to the people, through conventions of delegates chosen by them, *why should not important amendments take the same course?*

The reason may be found in the fact that the proponents of amendments consider it *easier to persuade a limited number of legislators* to adopt them than to induce the people, after discussion, and who are ever jealous of preserving the Constitution of the fathers, to change their organic law. It is rather singular that in these days of much talk about *popular government* Congress submitted to the legislatures, not to conventions of the *people* in each state, the Nineteenth Amendment as to woman's suffrage and the Eighteenth Amendment as to prohibition.

It was proposed in the recent Congress that the twentieth amendment, now pending for ratification, and which would give to Congress the remarkable grant of power "to limit, regulate and prohibit the labor of persons under 18 years of age," should be submitted to conventions of the people of the several states; but its proponents objected and Congress ignored the opportunity to allow the people to pass upon it through conventions, as it could have done under the article of the Constitution quoted and now submits it to the legislatures. In the debate in Congress, Mr. Montague, of Virginia, moved to amend the bill so as to submit the amendment to convention of the people in each state, whereupon Mr. Foster, of Ohio, who had introduced the measure, declared that "the distinguished gentleman of Virginia discloses the motive back of his amendment" (that is to submit it to conventions) and "every gentleman in the House, whether he is for or against this amendment, understands that the motive so evidently back of this amendment—at least, the result to be accomplished by the amendment (that is, to submit the question to conventions of the people) "would be to defeat any child labor amendment." (*Congressional Record*, Sixty-Eighth Congress, first session, p. 7251.)

MANIFESTLY A SOVIET MEASURE

The advocates of this twentieth amendment were not willing that it should go to conventions of the people,

because *it would involve the fathers and mothers being heard on the subject*, and the question determined by the electors. Neither did the advocates of the Eighteenth or Nineteenth amendment care to allow the people to pass on those measures. Senator Underwood, speaking in the Senate on June 4, 1919, on the Nineteenth Amendment said: "I should like to suggest to the Senator from Arizona (Mr. Ashurst) that the fathers, some 128 years ago, in writing the Constitution provided a method by which the voice of the people might be heard. . . . Of course, we all know that the constitutional provision directly gives the opportunity, if Congress avails itself of it. . . . We challenge you to go to the hustings; we challenge you to submit this question to the people and not to the Legislatures of the States." (*Congressional Record*, June 4, 1919.)

But Senator Ashurst voiced the unwillingness of the advocates of that measure to trust to the verdict of the people in saying: "I rather, suspect—no, I cannot use that word—I dread, rather, that this may defeat, delay and hinder the celerity with which I would like to see this amendment adopted."

Had there been in this measure a proposition to grant a power to Congress to regulate the employment and conditions of child labor, the advocates would have been willing to submit it to conventions of the people to ratify, but because they know *it is not a child labor law* in the sense of regulating the hours, employment and ages of children, which operate upon the employer, not the child, and because it is manifestly a Soviet measure to "limit, regulate and prohibit *the labor*"—not *the employment*—"of all persons under 18 years of age," they would put it over the people, write it into the organic law of the country, through influences brought to bear on legislators, with or without the popular approval.

LIKE PONTIUS PILATE

The fact that a Congress could be led by the influences which dictated its action to submit to the respective states this amendment is in itself an evidence that it will be influenced by the same agencies to pass laws, pursuant to the power given, create bureaus with power to make rules and regulations, having the effect of statutes, and, in effect, place the youth of this country in serfdom to the whimsical theories and guidance of bureaucratic Federal agents instead of leaving them to the love, guidance and common-sense direction of their parents.

So it is that the same influence which heckled Congress to submit this minor labor amendment to the legislatures, will, by propaganda, appeal to sentiment, threats and heckling, undertake to influence enough of the legislatures to ratify the amendment, without consultation of the people, and we may have our Constitution amended by the action of members of Congress, who, like Pontius Pilate, washed their hands of responsibility and passed it on to the legislatures, and by 2,316 members, a majority of three-fourths of the state legislatures, who may vote to adopt it.

Even in Massachusetts, where at the last election an advisory referendum was held under an act of the

state legislature on the question of the ratification of the proposed twentieth amendment and the measure was defeated by a popular majority of 448,898, out of a total vote cast of 943,340, or three to one, the legislature will not be bound legally by the popular vote. It can ignore the mandate of the people and ratify the amendment, contrary to their ascertained will, although it will not likely venture so to do, and its action would be legal and the state would be counted for ratification, notwithstanding the overwhelming sentiment of the people solemnly and deliberately expressed in opposition to it. This, because Congress in submitting it to the states elected to submit it to the legislatures rather than to conventions of the several states.

DOCTORS AND THE TORNADO

We note with gratification that some of our members promptly responded to the call for help from the grief stricken towns of Southern Illinois after the frightful tornado of March 18. They joined the grand army of physicians and surgeons that was recruited from all portions of our own state and from the adjoining states. The first notice of this awful disaster, brought through the air by radio, was sufficient to start this great movement and before the next morning's sun shed its light over the scenes of death, mutilation and wreckage this body of medical and surgical men were on the field ministering to the victims of the great storm.

The next day brought additional help and this stream of restorative talent did not cease until all demands in every part of the stricken territory were amply supplied. The same prompt reply is made in any great catastrophe or disaster be it cyclone, fire, flood or earthquake. There is always a prompt response by the medical men of the country, who drop their business, leave home, family and friends, undergo all the hardships that are associated with any great calamity. They volunteer their services, without hope of reward or remuneration, work day and night in improvised tents, in the homes that have been spared, in the hospitals of nearby cities, to which the injured may have been transported and do not cease their ministrations until all of the sufferers have been made as comfortable as circumstances may permit.

All honor to this noble band of humanitarians who pour out their store of knowledge, skill and attainments in answer to some great calamity and distress.

PSEUDO-DOCTORS AND THE TORNADO

In writing the story of the noble men who donated their services to the victims of the tornado that descended upon Southern Illinois, the thought came to us time and again, that the names of the pseudo-doctors, the osteopath, chiropractor, napropath, christian scientists and the rest of the 57 varieties, were not included in the list of volunteer workers whose untiring efforts brought relief and comfort to so many of the unfortunate victims of the storm.

While the medical profession took off its coat, rolled up its sleeves and ministered to the wants of the injured, the members of the various cults remained at

home and rubbed the spines of a misguided public at a dollar a rub, or administered absent treatment at so much per. It seems as if these self-styled doctors had nothing to offer at a time of public calamity and distress, their services were not needed, were of no value whatever.

Did you ever hear of any member of the various cults who contributed anything to promote human welfare at a time of great human need? Did you ever hear of any organized effort on their part to bring order out of chaos, to banish gloom by bringing in sunshine, to repair broken humanity and restore mutilated bodies?

The members of the medical profession of our county, have organized a free clinic for the examination and treatment of indigent victims of tuberculosis. The same movement is sponsored by medical men in other counties, besides sustaining clinics and dispensaries for the free treatment of crippled children and victims of other diseased conditions.

Did you ever hear of a chiropractic clinic or a dispensary sustained by these pseudo-doctors, where their peculiar style of treatment is offered to the general public, free of charge?

Think it over.—*The Madison County Doctor.*

Correspondence

THE SELF SACRIFICING WORK OF THE LAY EDUCATIONAL COMMITTEE

Chicago, Ill., April 2, 1925.

Lay Educational Committee,
Illinois State Medical Society,
25 East Washington Street,
Chicago, Ill.

I have watched your work during the past year with pleasure. I admire your self sacrificing work. Keep it up and go even further. You have my full sympathy in the work.

Enclosed find cheque for ten dollars to help the work this year. Will be glad to help in the future.

C. M. POHL.

COOPERATING WITH THE LAY EDUCATIONAL COMMITTEE

Decatur, Ill., March 10, 1925.

Lay Educational Committee,
Illinois State Medical Society.

GENTLEMEN: I am enclosing cheque for ten dollars, my small contribution for this year. I wish to obligate myself to pay ten dollars each year, so kindly keep me in touch with what you are doing and send for my ten dollars next March.

Sincerely,

JOHN HUSTON SPYKER.

APPRECIATING THE WORK OF THE LAY EDUCATIONAL COMMITTEE

Rock Island, March 28, 1925.

Lay Educational Committee,
Illinois State Medical Society.

GENTLEMEN: I am in receipt of your letter asking subscriptions to the "Lay Educational fund." I am delaying sending my remittance until the next meeting of the Rock Island County Medical Society when I will introduce a motion for recess for five minutes and give those present a chance to hand their cheques to our secretary who will forward same to the committee. I am heartily in favor of the movement and the work of Miss Keller, and if all the doctors would appreciate the fact that the Chiros are taxed ten dollars a month or \$120.00 a year by their organization they would readily realize how cheap we are getting off.

H. J. FRIEDMAN.

Note: It is men like the above that have made the results achieved by the Lay Educational Committee possible. The work done by Miss Keller and the Committee during the last year has done more to re-establish the profession of Illinois into the confidence of the people than the combined results of the work done in the previous twenty years. As a result of the last year's energy on the part of Miss Keller and the committee we now have all health agencies within the state seeking the cooperation of the committee and signifying a desire to function in the future under the direction of the Illinois State Medical Society.

Have you subscribed to the Lay Educational Fund? The preliminary subscription to the Lay Educational Fund is exhausted. If the work is to continue new subscriptions must be forthcoming. Below is printed a blank for your convenience.

Please sign and mail to the Illinois State Medical Society.

To the Officers of the Illinois State Medical Society and Members of the Council:

"I am in accord with the lay educational campaign unanimously adopted by the House of Delegates of the State Society and of the plan recommended by the Council of the Society, and as evidence of my desire to co-operate with the Officers of the Council and of the State Society, I hereby enclose my check for \$..... to aid in defraying the expenses thereof:

Make Checks Payable to the Illinois State Medical Society.

Name M. D.

Street

City..... County.....

"Sign the above pledge card, make out a check payable to the Illinois State Medical Society and mail both in an envelope as follows:

From

.....

.....

.....

ILLINOIS STATE MEDICAL SOCIETY

c/o Cashier, Sheridan Trust and Savings Bank,
4738 Broadway, Chicago, Ill.

Lay Educational Committee.
25 E. Washington St., Chicago, Ill.

UNABLE TO CHANGE DATE FOR STATE MEETING

Monmouth, Ill., March 17, 1925.

TO THE EDITOR: The council received several petitions asking for the change of date for the State meeting at Quincy on account of the Tri-State European tour which conflicts with the date already arranged for the meeting. The petitions were presented to the council at its meeting March 11 the council was unable to change the date for the State meeting for the following reasons:

Owing to the fact that contracts had been given to exhibitors and definite arrangements had been made at Quincy for May 19, 20 and 21 and because of many other arrangements that have been made both by the Society and the Quincy committee on arrangements, it was found to be impossible to make a change in the dates of the State meeting as prescribed by the By-Laws.

Enclosed is a letter from Dr. Peck, managing director of the Tri-State District Medical Association, which will no doubt meet the approval of many members of our Society who want to attend both our meeting and take the trip.

I trust that they will get in touch with Dr. Peck so that satisfactory arrangements can be made.

Very truly yours,

H. M. CAMP, M. D., Secretary,
Illinois State Medical Society.

The following is Dr. Peck's letter.

Freeport, Ill., March 15, 1925.

Dr. Harold M. Camp, Secretary,
Illinois State Medical Society,
Monmouth, Illinois.

Dear Doctor Camp: We are in receipt of your

letter of the 13th inst. We will be glad to arrange the transportation for the physicians going on the Clinic tour to Canada, British Isles and France, so that it will be possible for them to attend the State meeting at least until Wednesday noon, May 20. If these physicians will send me their names I will have their transportation arranged in accordance with this request.

It is a pleasure for us to do everything possible to co-operate with the council and you in the affairs of our State Medical Society.

Sincerely yours,

W. B. PECK, M. D.

GETTING THE DOCTOR'S NAME IN THE
NEWSPAPER
HOW MANY PHYSICIANS IN ILLINOIS
FELL FOR THE DOCTOR HARRY
MILLER LETTER?

A. Henry Arp, M. D.

Arp Bldg.

Moline, Illinois, January 23, 1925.

Dr. J. Henry Fowler, Secretary,
R. I. County Medical Society,
East Moline, Illinois:

Dear Doctor:

Am enclosing some literature which I feel will be of interest to the members and I think that some action should be taken in this matter, as such a procedure is contrary to medical ethics and in the wrong hands might be detrimental to the profession.

I might also call your attention to a John Comerford, 120 Kirkwood boulevard, Davenport, Iowa, a layman, who was sent to call on a family of mine whose daughter has had spinal meningitis. He offered them a clay treatment with internal medication as a treatment for the paralysis resulting from this disease. Although, on my advice, they are not considering the treatment, I think this might also be a matter for consideration.

Yours very truly,

A. HENRY ARP.

ETHICAL NEWS SERVICE
HARRY MILLER, DIRECTOR
322 SOUTH STATE STREET
CHICAGO, ILLINOIS

Dr. A. H. Arp,
Arp Bldg.,
Moline, Illinois.
Dear Doctor:

January 14, 1925.

Have you ever given thought to the disadvantages that the physician labors under in the pursuit of his profession? With the possible exception of the dentist

and the lawyer, he is deprived of the many mediums of contact open to all other lines of human endeavor. If a merchant be progressive, he may make use of the newspaper, the mail, the billboard, in furthering his interests; in the case of the doctor, due to ethical considerations, this is obviously out of the question. And so the doctor finds himself hemmed in on one side by the quacks in the profession and on the other by a whole crew of healers that flourish today to the detriment of the many, good, old time practitioners.

Let me ask you another question. Have you noticed in reading the metropolitan papers how consistently the same physicians are mentioned in discussions of medical matters? It is always Dr. Jones or Dr. Brown who is quoted in news stories. Why? There can be no doubt but what persistent mention in the public press is worth dollars and cents to a physician, but why should a select half dozen be kept in the spotlight out of possibly ten thousand equally good doctors? The secret will be found in the friendship of newspapermen that the favored few hold, and so simmer into the news; others have the help of trained newspapermen and in that way find favor with our editors.

Are you interested in a like opportunity for yourself in your own community? If you may not use advertising display space, why not take advantage of the opportunity offered by the news columns? It is the most conservative form of keeping oneself before the public, and this organization of trained newspapermen and doctors is now ready to give you the benefit that heretofore only a select list of physicians in our larger centers have received.

Enclosed is a news story for your local newspaper. The material is common knowledge to all medical men but is news to practically all laymen. There is nothing to disagree with in it, and it has the advantage of being put up in correct newspaper style. It is so worded as to reflect very creditably upon you, to heighten your prestige in the community, and in the long run to result in financial benefit to you. Take or send this story to your editor. If he prints it, you will mail us a check for \$15.00 within five days; if he refuses to run it, simply return it to us in the enclosed envelope and there is no cost to you. You may offer the story to as many more papers as you like, with no extra cost to you. You are the only physician in your community that is being approached on this and if you feel that you cannot take advantage of our offer, please return the story so that we may offer it to some one else. You will readily see that this article, if published, is worth real money to you; if not published, you do not owe us one cent. All we ask is that in sending the check you also include a clipping of the article so that we may have it in our records.

We have in preparation a series of articles dealing with various diseases, all written in popular style but adhering strictly to the facts. If you decide to make use of the enclosed article, you will be considered as having exclusive rights to their publication in your community in much the same way as with the first article. However, if you feel the need of special

articles, tell us your problem and we'll prepare just the articles that you want.

Please remember that there are no strings to this offer. If your editor publishes the enclosed article, you mail us your check and clipping; if not, you return the story to us. We know the merit of the article and feel that your editor will see its news value. And as for yourself, can you think of anything else that will go as far toward making 1925 a truly happy and prosperous year for you?

Yours very truly,
HARRY MILLER, Director,
ETHICAL NEWS SERVICE,
Chicago, Illinois.

GOITER EASIEST DISEASE TO PREVENT

Goiter, one of the gravest problems confronting medicine, is the easiest known disease to prevent, according to Dr. A. H. Arp of this city. Dr. Arp has recently completed a survey of medical literature on the subject.

The chocolate tablet method for the prevention of goiter is most popular with the medical fraternity at the present time, says Dr. Arp. Following its successful use in Switzerland, the recent experiments at Akron, Ohio, seem to have borne out all that had been claimed for it. Of the thousand girls in the Akron schools who were given the treatment over a considerable period, not one developed goiter, while of the two thousand other girls who were under observation but who did not take iodine, 27.6 per cent developed goiter. Furthermore, 60 per cent of the girls who had goiter when the tests were started and who took iodine systematically found that the thyroid had returned to normal size, while of those that did not take iodine, very few cases showed any tendency to decrease.

The Great Lakes region continues to be the most fertile field for this disease, says Dr. Arp, although a rapid multiplication in cases is noted in the Middle and North West, and to a lesser degree throughout the country. Fatigue and overwork seem to bear a definite relation to goiter, and diet and drinking water unquestionably have their effects. More cases are found in high altitudes than in low, and women are much more disposed to it than men. Because of its appearance in earliest youth, there is believed to be a possibility that it is transmitted with the hereditary characteristics. It is not infectious, and an iodine course of treatment generally proves effective.

While the disease in its most advanced stages will only yield to operative measures, states Dr. Arp, prevention should begin in early life. In some places, he says, splendid results have been secured when tried on girls in the period of adolescence, but equally good results are known to have been gained with children of eight and ten, and with boys as well as girls. Pregnancy is a particularly desirable time for the administration of treatment as at that time it tends to prevent its development in the child as well as the mother.

(Copied from copy which accompanied Ethical News Service letter to A. H. Arp.)

Dr. Arp filed protest with the Rock Island County Medical Society.

Original Articles

MEDICINE AND THE FUNDAMENTAL SCIENCES*

CHARLES K. EDMUNDS

Provost, Johns Hopkins University.

BALTIMORE, MD.

What is a University? Universities have in their long history had many forms and played many parts; but their essential nature, as a distinctive and necessary part of any civilized society, is simple and unchanging.

A university is an organized and continuing body of men associated together, after due training, for a threefold task:

1. To deal at *first hand* with the sources of knowledge, to verify truth and so far as possible enrich man's store of it;
2. To impart such knowledge, and the methods by which it may be further extended, to students at the final and highest stages of their preparation for their own active professional careers.
3. To inspire men thus trained to service.

How Did Universities Arise? The function of discharging this threefold task, and the profession exercising it, are older than the university itself. "Professors," or professional investigators and teachers, first appeared as individuals in Greece half a millenium before Christ. They introduced the then new and startling conception of the possibility of improving the conditions of life, and directing more effectively man's activities through the free and methodical exercise of the exploring intelligence.

Around these men soon appeared the beginnings of organization; first in the form of the philosophical schools, originally gathered about some great thinker and teacher such as Aristotle, but often persisting as organized bodies for several centuries. Somewhat later a few full-fledged universities arose, notably the "Museum" of Alexandria with its rich endowments and large corps of scholars carrying on both original inquiry and advanced teaching.

Essentially similar were the origins of the modern university. It began in the twelfth and thirteenth centuries; and in its earliest form it was simply a guild or association of students and professors.

What then is the Nature of a University? It is important to realize that all universities, un-

*Read before the Inter-State Post Graduate Assembly of America, Oct. 27-31, incl., 1924, Milwaukee, Wis.

cient and modern, are built of brains, not bricks.

The eye sees campus and buildings, library and laboratories. But these are not the essence of a university. They are the tools, without which progress is impossible, and they largely constitute the contrast between the university of today and the university of ancient times.

But the essence of a university is its *men*, and the *spirit* which guides them.

This spirit is simply a faithful adherence to the triple function of teaching, research and service.

The teaching is fundamental. But so is the spirit of research; the active quest for truth as distinct from its passive absorption—without which no teaching institution, however large, has the genuine character of a true university.

Service. To these two we must add *service*. Service to the local community, service to the state, service to the nation, yea, and service to the world; and these cannot be maintained except through service to the individuals who compose society. A true university cannot thrive apart from an outlet in the community for its product in men, in ideas and in spirit. It must keep its feet on the ground; it must develop "legs" as well as "heads". . . I am reminded of two stories to illustrate this double point. Lloyd George, when making one of his famous campaign speeches, was heckled by a man who cried out, "What do you know about that, you little runt of a Welsh lawyer!" To which Lloyd George like a flash replied, "That fellow must be an Englishman, for in Wales we measure a man from his neck up!"

True, the university must develop intellect. But that intellect must reside in a body and that body, to be effective as a servant of mankind, and ever to serve itself fully, must have legs. . . Abraham Lincoln was once present when some friends were discussing how long a man's legs should be. When the question was referred to him, Abe Lincoln said, "Well, I've always thought a man's legs ought to be long enough to reach the ground!" . . .

Indulge yourself in all the high thinking you can, but keep mindful of those about you who need your help. There must be teaching, research and service, and the greatest of these is *service*.

Yet the preparation and foundation for that service involve the broadest possible scientific re-

search; and it is of this that I wish to speak a little more in detail.

Importance. For more than a century the greater number of those researches, which have recast radically our understanding of nature and of human history, have modified largely the physical conditions of human existence and of personal health, and have made possible those inventions and commodities without which our vast modern populations could not so much as subsist, have been carried on by members of universities in university libraries and laboratories.

The Pursuit of Research. The motto of Johns Hopkins University is *Veritas Vos Liberabit* "the truth shall make you free."

The University has always been an apostle of truth for the sake of truth, of the pursuit of new knowledge with new knowledge as its own reward, and yet in its practice of that principle many discoveries of very great practical importance have been made.

The Medical Field. Now the greatest field of service, in which the University as a discoverer of truth may apply it for the benefit of mankind, is the field of medicine.

Old as is the science of medicine, the last fifty years have seen a greater advance than in all the preceding period since the days of Hippocrates himself. Yet so much remains to be done that medical science itself is rapidly undergoing a great change. It is seeking to apply to life processes the fundamental principles of physics and chemistry. It is seeking in biology and genetics, the secret of life processes themselves. And subjected to such inquiry, life presents itself as an increasingly complex problem of physics and chemistry.

Growth, the assimilation of food and all the normal functions of the body, in so far as medical knowledge has begun to understand them, are controlled by a most intricate system of chemical and physical reactions which take place in the laboratory of the body. When these reactions become abnormal their outward manifestations constitute the symptoms of disease.

Consequently our leading medical schools are endeavoring to make medicine a biological science by applying the methods of the fundamental sciences to the study of life. They realize that the physician, if he is to know how to restore health to the diseased body, or better still to

prevent disease, must first know the laws governing the normal functions of the healthy body.

When Johns Hopkins left his money for the founding of the university which bears his name in his native city of Baltimore, he left an equal sum for the funding of the great hospital which also has made his name known throughout the world. In his mind there was clearly a fundamental connection between the two institutions—moreover, the first president of the university, Daniel Coit Gilman, was also the first director of the hospital. And when the university opened its doors in 1876, it was for advanced students in six fields of research, the three fundamental natural sciences of physics, chemistry and biology being well represented under the leadership of Henry Augustus Rowland, Ira Remsen and Henry Newell Martin.

The unusual opportunities for research and the magnetic character of these leaders brought to the university as students many men who have since won distinction in these three fields, as Wm. K. Brooks, W. T. Sedgwick, E. B. Wilson, Wm. H. Howell, M. M. Metcalf, Frederick S. Lee and Thos. H. Morgan, in biology; H. N. Morse, H. N. Stokes, E. H. Keiser, Geo. M. Richardson, C. H. Herty and E. P. Kohler in chemistry; E. H. Hall, E. L. Nichols, A. L. Kimball, Henry Crew, E. B. Rosa and General Geo. O. Squier in physics.

It was with such preliminary emphasis on these three branches of natural sciences, and in such an atmosphere of research and of high educational standards that the Medical School was opened in 1893 as an integral part of the University and the active nexus between the University and the Hospital.

From the start this Medical School has required its students to have the bachelor's degree before admission and has required complete preparation in the basic sciences of chemistry, physics and biology, thus early emphasizing the importance of these fundamental subjects to the further progress of medicine.

For a decade or more special courses in each of these subjects had to be provided for the benefit of students coming to our Medical School from other institutions, before the colleges realized the necessity for a thorough grounding in physics, chemistry and biology as preliminary to the successful study of modern medicine.

It is, I believe, generally admitted that Johns

Hopkins has contributed to the development of scientific medicine in this country, and also, I believe, to the development of the modern method of investigation and advanced instruction in physics, chemistry and biology. What I wish just now to emphasize is the fundamental relation between the two. The achievements in medicine have been largely due to achievements in these other fields.

To make this clearer, a few concrete examples may be cited and should suffice:

Remsen, working in his chemistry laboratory, discovers a new compound, a sulphonephthalein, derived from coal tar acids. So far as he is concerned that is the end of it. He turns at once to another research. But Dr. Abel, the head of the Department of Pharmacology in the Medical School, takes this compound and subjects it to further research, finding that it serves as a useful guide to the condition of the kidneys. Then, in the hospital, the urologists adopt it to determine the ability of certain patients to withstand the shock of operation; and one of the first patients on whom it is used is Remsen himself!

Verily, not a vicious circle, but a circle of life.

Roentgen, studying the discharge of electricity through gases purely from the standpoint of the physicist discovered x-rays. The use of these rays in the diagnosis of surgical cases immediately followed and also a little later their use as a curative agent. Yet, owing to an insufficient appreciation by the physician of some of the conditions quite a few patients and also workers suffered severe injuries. Further physical research showed what the necessary precautions were and led to a perfection of apparatus and of technique.

Let us follow up just one case in which the use of x-rays as a diagnostic indicator formed only the first step in a series of discoveries the end of which is not yet.

By means of Roentgen photographs the peculiar conditions of the bones of the head and of the ribs were revealed in the case of rickets in children.

Howland at Johns Hopkins, by direct analysis showed this beaded condition of the bones to be due to a deficiency of lime or of phosphate in the blood.

Hindschinsky effected cures by exposure of patients to the radiation from a quartz lamp with mercury vapor as the radiant, especially strong

in the ultra violet; while Hess attained cures using ordinary sunlight.

McCollum and Park at Johns Hopkins working on rats caused rickets through a deficiency of calcium or of phosphorus in their diet and definitely cured the same with sunlight. Then it was demonstrated that the portion of the solar spectrum really effective was only the ultra-violet in the neighborhood of 400 millimicrons or say all below 320.

Pfund, working in the physics laboratory at Johns Hopkins on a problem connected with the darkening of certain paint-pigments when exposed to sunlight, is thereby able to suggest to Dr. Janet Howell Clarke at our School of Hygiene, herself a physicist, (the daughter of our Dr. Wm. H. Howell) a simple method for measuring the intensity and dosage of the ultra-violet radiation to be used in curing rickets by the use of an exposure meter in which a fresh area of paint-pigment known as lithopone is rapidly darkened by the rays from about 320 down, till it matches a standard tint.

But suddenly the plot thickens! For it is found that, by feeding cod-liver oil the same good results are obtained as with ultra-violet rays!

Then from Wisconsin comes the report that some ordinary foods subjected to radiation before feeding produce the same effect as cod-liver oil. Possibly this results from an alteration of the electrical condition of calcium or phosphorus salts already present in the intestinal tract rendering them available for absorption into the blood whereas without such excitation they are not in condition for assimilation.

The complete elucidation of these curious phenomena involves the action of semi-permeable membranes, as well as the photo-electric and physiological effects of radiation on the colloidal conditions of body fluids, body tissues and cells. It even looks as if some of the vitamine principles that have been already recognized are really electrical conditions and not material substances. And it is clear that the whole field of the physiological effects of radiation needs exhaustive study. Naturally, that in turn also means the further study of radiation by the physicist himself.

The first step in this general direction would be the establishment of an adequate Department of Radiology and Biophysics, to study the bearing of physical phenomena on the problems of medicine. There is need of a special department

to study the therapeutic value of radium emanations. Little is known also of the value of light. Medical science is just beginning to realize that light, like coal tar, is a crude product. It is made up of a multitude of wave lengths, some beneficial in their action, like the ultraviolet, some harmful, like the infra-red. There is need that the physicists do much the same with light, from the medical standpoint, as the chemists have done with coal tar, which has been a source of so many weapons against disease.

The new department would also study the physical action of water, for little is known of water therapy, the effect of various baths on the cells of the human body, and the physical action of solutions in promoting the circulation of the vital body fluids. This opens up an entirely new field.

If, for instance, the Medical School would attract to its faculty a leading physicist, who, with his assistants, might devote himself to the study of surface tension, osmosis, radio-activity, the electrical forces concerned in colloidal suspension and the activities of x-ray, ultra-violet rays and various other forms of radiation, there is no doubt that the vision of the students would be broadened and the fruitfulness of medical research increased.

Like the study of diseases of the eye, the study of diseases of the ear, nose and throat seem inadequately provided for in American medical schools. So little is known of the underlying causes of deafness that the General Education Board, the Western Electric Company and other interested individuals have provided a fund with which to begin fundamental researches dealing with the basic anatomy of the organs of hearing and the effect on them of other diseases. Dr. Samuel J. Crowe has these researches under his direction at Johns Hopkins.

Intense radiations from furnaces have long been known to be injurious to the human eye and even to cause cataracts with resulting blindness to workmen.

Dr. Pfund, a Johns Hopkins physicist, has produced gold screens by depositing a thin layer of gold on yellowish glass, which allow the visible radiations to pass through, but shut off both the ultra-violet and the infra-red rays that cause the trouble. These screens have been made into goggles which protect the eyes of workmen around furnaces, and are also used in motion picture

technique. This might be called "preventive medico-physics."

A question of peculiar interest to man as a "worker", i. e., as an "engine" or "prime-mover", is the problem of the conversion of the fuel elements in our food into work, essentially a problem in physics.

A. V. Hill, of University College, London, trained as a physicist at Cambridge University and adding his physics to physiology, has recently applied in a masterly manner the laws of physics in great detail to muscular activity. With Gasser of Saint Louis, formerly of Johns Hopkins, he has shown that a muscle acts precisely like an elastic body which also possesses high viscosity. He thus explained the cross striations of muscular fibre. In certain cases he has demonstrated the energy relations of muscular activity, showing a sort of hysteresis, and he has pointed out the importance of the speed of reaction. For instance, he has shown that there is a certain definite critical speed at which a given action should take place to secure the maximum work in return for the expenditure of energy through muscular activity. In ascending a given flight of stairs there is for a given individual a definite or critical speed at which the expenditure of energy is a minimum. To ascend more slowly or faster than this is to waste effort. In one case investigated this critical speed was 78 steps in 100 seconds.

Similarly the factor of speed is being more and more recognized as an important one in the chemical reactions taking place in the body as well as in the muscular activities when doing external work.

The study of chemical accelerators, the enzymes, and the study of colloidal actions which are so largely involved in the functioning of nerve and cell, muscle and organ—present such complex problems that the combined labors of the chemist, the physicist and the biologist as well as of the pharmacologist and the pathologist are all needed for their solution.

Colloids. All the tissues, muscles, and fluids of the body are colloidal suspensions. Hence the study of colloidal chemistry is of vital importance for the development of medicine as a science.

The sensitiveness of the kidneys to acidity, the coagulation of the blood, the stiffness of muscles are all instances of the disturbance by very slight

changes of the stability of a colloidal system vital to health.

Surface tension, electrical changes and conditions of ionization, response to radiation, the behavior of semi-permeable membranes—all these are factors to be studied. They are fundamentally physical-chemical problems.

During the war Embden of Frankfurt University discovered that acid sodium phosphate increases a man's capacity for muscular work and probably aids in prolonged mental work also. It appears to have no bad after effect and can be taken for long periods. It may become as normal a beverage as tea or coffee, as the cost is low.

Chemistry will be more and more applied to the production of the most important group of physiologically active substances—namely foods. Many, including the proteins, we shall probably build up from simpler sources such as coal and atmospheric nitrogen. Haldane, Bio-chemist at Cambridge, allows not more than 120 years before a completely satisfactory diet can be prepared in this way on a commercial scale.

The need for collaboration is clearly indicated.

Ether was known to chemists for over 500 years before its value as an anaesthetic was appreciated.

Magnesium sulphate was known to chemists for 200 years before it was learned what great relief it gave in lockjaw, burns and strychnine poisoning.

Twenty-three years elapsed between the discovery of amyl-nitrite by the chemists and the discovery of its medicinal properties by the physician; during this interval tens of thousands suffered the tortures of angina pectoris needlessly just because the chemists, the pharmacologists and the physicians were not working together.

For, just as the pharmacologist is the armorer of the physician providing him with new and better weapons in his fight against disease, so the chemist is in turn the father or elder brother of the pharmacologist. The ultimate aim of their collaboration is to make the physician as sure of the action of those substances which he puts into the human body as is the chemist when he mixes chemicals in a test tube.

One of the most important fields in which the pharmacologist must rely thus upon chemistry is the isolation, study and preparation of the pure principles of our organic secretions.

One example will suffice to illustrate. Schafer

& Oliver noted the presence of a vaso-constrictor principle in the suprarenal glands. Abel of Johns Hopkins isolated it in the form of a derivative and prepared a number of salts of this derivative. Takemine precipitated the pure principle of adrenalin by means of ammonia which Abel also had used. The chemical structure was determined and it is now prepared synthetically. Among its numerous and now well known advantages we may note that it reduces the toxic effects of a local anesthetic, relieves the spasms of acute asthma, checks hemorrhage of a capillary or small arterial character; sustains the heart in operative cases and in pneumonia.

Perhaps the greatest immediate problems of chemo-medical research are those involving the isolation of the pure principles of the antitoxins, bacterial vaccines and serums now used so widely in the cure or prevention of infectious diseases.

What indeed is disease? As yet there is no adequate answer. We know that germs are active in bringing about certain pathological conditions but the knowledge of how they are able to begin their work is still shrouded in much uncertainty. Everyone is constantly breathing the bacilli of tuberculosis and a dozen other diseases but all of us are not sick. What enables the cells in the bodies of some to resist the attack of disease germs? What gives them ingress in others? What chemical and physical changes take place to make the same individual at times susceptible and at times immune?

The detection and destruction of the cholera bacillus, while involving considerable science, really involved only one purely biological principle, important but not profound—that some bacteria kill some men. The really scientific parts of the process are the optical and chemical methods involved in the magnification, staining and killing of the bacilli.

Yet the immunization to typhoid apparently involves biological principles which are neither simple nor completely understood.

While the microscope, with all its marvelous improvements, can go no further than the cell or its divisions, chemistry can go much farther. Cell secretion, cell respiration and cell nutrition are clearly only different aspects of the same whirl of molecular activity. Physical-chemistry will carry its analysis down to the molecules and atoms, even to the corpuscles or nuclei which constitute the fundamental electric charges.

CHEMISTRY AND BIOLOGY

Great good would result from the appointment of chemists and biologists within the medical faculty. Were outstanding men in these sciences secured, both advanced students and instructors from other departments of the school would have the opportunity of working under conditions which could not fail to advance medical knowledge. At present the Department of Physiological Chemistry at Johns Hopkins, for instance, is primarily concerned with the metabolism of the body; but such investigators as are contemplated would deal with the fundamental chemical phenomena that apply to almost every problem of medical science.

The remarkable power of the blood to maintain its normal alkalinity has been elucidated completely by Henderson of Harvard on simple principles of physical chemistry, showing the existence of chemical "buffers."

Dr. George Crile of Cleveland has recently brought forward proof in support of the theory that life itself is a phenomenon which is primarily based on the electrical properties of the cell, the smallest division of living matter. Complete knowledge of the articulation of the bones and muscles of the body and the flow of the blood is also recognized to be dependent on the application of physical laws to the interpretations of these actions.

Positive and far-reaching results in almost every branch of medicine will accrue from the concerted attack upon its problems of expert chemists, expert physicists and expert biologists and medical men organized on the basis of this fundamental physical-chemical point of view.

In turn the chemist or the physicist needs the co-operative effort of the medical investigator—the pathologist, bacteriologist, internist, for only by such co-operation can the vital problems of medicine be brought home to the consciousness of the experts in the fundamental sciences.

It must be clearly borne in mind that these specialists should be primarily physicists, or chemists or biologists—not medical men with some training in one or the other of these fields. Moreover they should not have been trained with any special or narrow field of application of their science in view. What is needed is not technologists but scientists with a broad fundamental grasp of the principles of physics, or of chemistry or of biology. Only those thus thoroughly trained

will be able to tackle with maximum success the intricate problems involved in the more accurate determination of the physical and chemical aspects of man's body and its life.

Chemistry is the fundamental science of the transformation of matter.

While physics is the fundamental science of the transformation of energy. Life in all its forms and phases is the highest, most complex combination of transformations of matter and transformations of energy. In this we have the key to the most important phases of modern medical research, and to our faith in its future.

The life work of Pasteur is, of course, the best known and also one of the most illuminating examples of the inter-relation of physics, chemistry, bacteriology and medicine. Such also was his personal character as well as the character of his work that by popular vote he was declared the greatest of Frenchmen. Certainly, his service to humanity looms large with every addition to our knowledge of infectious diseases.

It is not necessary, I take it, to remind you of the details of Pasteur's work; but merely to recall its broad lines in order to emphasize the sequence and inter-relations between the sciences involved in his achievement which has been of such untold benefit to humanity.

Studying the crystals of racemic acid, intent only on the advancement of knowledge, he discovered a dissymmetry between two groups of crystals which were chemically identical. The two types of crystals in solution produced opposite rotations in a beam of polarized light. Thus the constitution of racemic acid formerly so mysterious was elucidated and a new class of isomeric substances discovered. A distinctly unforeseen route had been opened in science which led twenty years later to the development of stereo-chemistry as a distinct field.

Pasteur succeeded in producing racemic acid synthetically. He observed that one class of the crystals ferments while the other remains inert. He showed that fermentation, which formerly had been regarded by Liebig and others as a purely chemical phenomenon, is due to the presence of a host of bacteria, which eagerly devour one class of crystals and ignore the other. Here was begun the study of the great putrefactive changes and of the part played by bacteria in disease, which made the world Pasteur's debtor. Cleanliness in modern surgery, the cure of rabies, the germ

theory of infection, all go back to those simple experiments in pure science—first physical, then chemical and then biological.

It has been estimated that the discoveries of Pasteur, merely in their economic value, to say nothing of their humanitarian value, more than offset the material loss by the Franco-Prussian War of 1870. Thus the works of a single scientist of genius, trained in a university atmosphere, created more wealth than the Armies destroyed.

What a privilege for the student even of today to follow in his footsteps; to feel the stimulus of his example; to realize in some measure that high sense of devotion to truth, of obligation to humanity, best typified in Louis Pasteur!

A STUDY OF 22 CASES OF LUNG ABSCESS*

P. S. WINNER, M. D.,

Medical Superintendent, Municipal Tuberculosis Sanitarium,
CHICAGO

The subject of lung abscess has received a great deal of attention the last few years. With the advent of the x-ray, the condition is more often recognized and numerous new methods for treatment have been outlined. I shall attempt to give our results in a series of cases collected within the last four years. What I have reference to is the true non-tuberculous abscess frequently observed in sanitariums handling cases of pulmonary tuberculosis. A diagnosis of tuberculosis is often made on these cases as the symptomatology is much alike, that is, cough, intermittent temperature, prolonged weakness and even occasional hemorrhage, make one strongly suspect pulmonary tuberculosis. The type we have observed here is the chronic type that has existed for many months or years. None of our cases have come to post mortem and I will therefore not dwell on the pathology of this disease. What I will discuss more in detail is the etiology, incidence and the treatment in this series of cases. While it is stated that lung abscess is at times encapsulated, the patients observed here were all of the type rupturing into a bronchus with profuse and constant foul expectoration.

Etiology. Statistical data collected in the literature as to the causative factors is rather confusing. However, all writers have noted the relative frequency of the disease following ton-

*From the Clinical Dept., Mun. Tub. San., Chicago. Read before the Section on Medicine of the Illinois State Medical Society, Springfield, May 7, 1924.

sillectomy. Percentages range from 20% to 30% of the cases of lung abscess following operations upon the upper respiratory tract. Richardson in 1912 pointed out that lung abscess following tonsillectomies under general anesthesia was rather frequent. Since then other observers have noted the same thing. Bassin in 1913 collected 16 cases following tonsillectomy, while Manges reported 9 cases seen at the Mt. Sinai Hospital. Whittemore¹ reported 32 cases of lung abscess 17 of which followed tonsillectomy. Singer & Graham² in 34 cases of lung abscess report 24% as following tonsillectomies. Moore³ states that pulmonary abscess occurs once in

with 19 cases and operations on the upper respiratory tract as third with 12 cases. Of 208 lung abscesses collected in the literature as a result of tonsillectomy, only 7 were found in patients operated on under local anesthesia. In 2534 tonsillectomies performed during the last five years at this Sanitarium all under general anesthesia, one lung abscess was noted in one case in a child nine years of age. The youngster fortunately recovered by a sudden evacuation of the abscess through a bronchus.

Pulmonary infections as a cause of lung abscess is frequently encountered. Among 948 cases of pulmonary infection admitted to Hos-

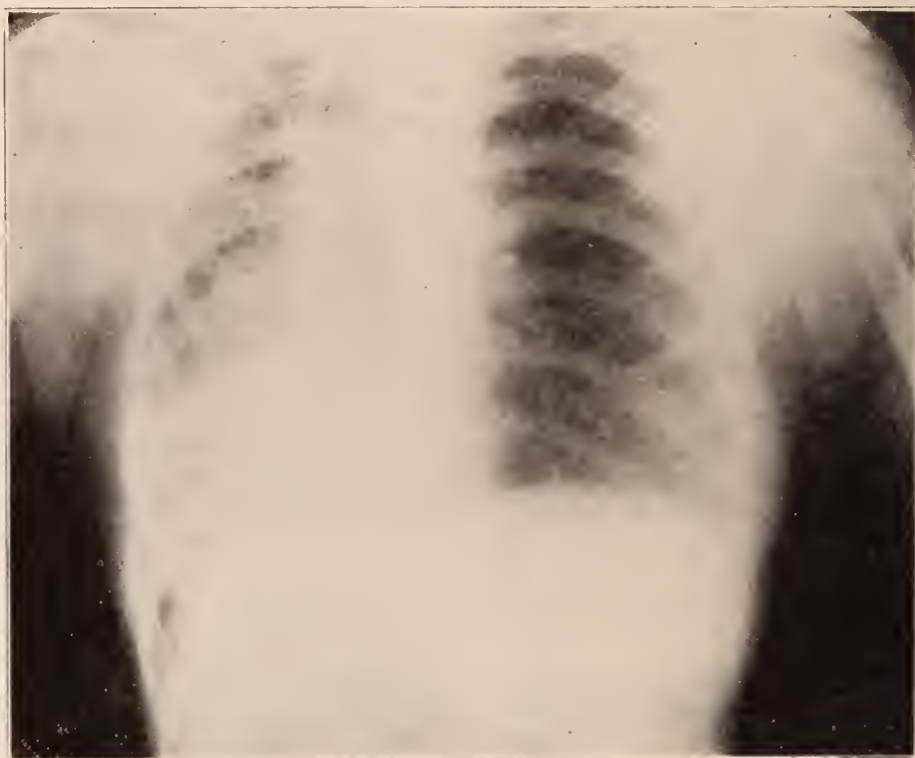


Fig. 1. Lung abscess involving left side.

2500 to 3000 tonsillectomies, although at the Mayo Clinic in one hundred thousand tonsillectomies no lung abscess was observed. Pilot⁴ citing 40 cases of lung abscess, ten of which developed immediately following general anesthesia, six followed tonsillectomy, two hysterectomy, one appendectomy and one herniotomy. W. B. Lennon, of the Mayo Clinic, reports 81 cases of lung abscess, pneumonia ranking first as a causative factor with 31 cases, influenza second

pital of the Rockefeller Institute from 1914 to 1919 lung abscess was found nine times, and in only two instances did it follow a pneumococcus lobar pneumonia. McCray collected 75 cases of lung abscess following acute lobar pneumonia. Frankel analyzing 1200 cases of lobar pneumonia finds that 2% developed a pulmonary abscess. During the severe epidemic of influenza, only a small percentage developed abscesses. Hedbloom reporting one hundred cases of prolonged influenzal infection noted three cases of lung abscess. Lockwood reports ten cases of lung abscess following influenza. In the 22 cases re-

1. Whittemore: Clin. of North America. Jan., 1921.
2. J. J. Singer and E. A. Graham: J. A. M. A., Vol. 8, July 21, 1923.
3. Moore: J. A. M. A. Vol. 78, April 29, 1922.
4. Pilot: C. M. Bull., March 15, 1924.

ported herewith the etiology is as follows: 32% following tonsillectomies, 23% following pulmonary infections, 9% following appendectomy, 4% following measles and 32% cause unknown.

Location of abscess. The lower lobes seem to be more often affected, the right more than the left. Moore in an analysis of his cases gives as 60% showing lower lobe involvement, 41% of these being on the right while 19% occurred in the left lower. The location as found in our cases is as follows: Upper lobe right 27%, lower lobe right 35%, lower lobe left 17½%, more than one lobe right side 13%, more than one lobe left side 8%.

rapid pulse. One other case, a young girl 17 years of age, with an abscess of ten years' duration, shows clubbing of fingers, expectoration not marked, and is able to be employed about the office daily. This case is now under pneumothorax treatment. The physical findings are invariably alike. Dullness of percussion and diminished breath sounds over the involved area are the most constant signs. According to Norris and Landis only 8 out of a series of 63 lung abscesses gave definite physical findings. Our percentage is much higher than those given above. At times malignancy will be found confusing as the x-ray will show a density, but the



Fig. 2. Same case. Condition on discharge. Pneumothorax clinically recovered.

Symptomatology: The symptoms encountered were quite characteristic. Loss of appetite, restlessness, general weakness, irregular temperature, clubbing of fingers and foul sputum were found as a general rule. The temperature is not always high and clubbing of fingers is found only in cases of long standing. One case, a child nine years of age, admitted in a dying condition, with a lung abscess following tonsillectomy, showed no clubbing of fingers and the profuse, putrid expectoration was the most marked symptom, together with a rather low temperature and

history of putrid sputum will readily clear up the diagnosis. Carman has pointed out that the diagnosis of pulmonary malignancy is nearly always possible from the plates, but in certain cases the patient's history and his physical findings must be considered.

As an aid in diagnosing, needling and the bronchoscope have been mentioned, but I doubt whether this is necessary in a great many cases. Puncture is unjustifiable, as death from pleural syncope, cerebral emboli or empyema may occur in certain cases. The bronchoscope has its dis-

advantages as there is danger of infecting the healthy lung. With a good history, x-ray and careful physical examination, I doubt very much the advisability of this procedure.

Age and Sex. In this series of cases 14 were found in males and 8 in females, the ages ranging from 10 to 57 years.

Treatment. Both surgical and medical measures have been suggested. In my opinion, postural drainage and expectant medical treatment should be undertaken before advising more radical measures. The use of the bronchoscope has been advised to irrigate the cavity and to aspirate the pus. Lockwood is of the opinion

abscess with pneumothorax. Towksberry⁵ reports two cases of acute pulmonary abscess treated with artificial pneumothorax both cases recovering. He gave small amounts of gas frequently repeated. He states that the mortality in lung abscess treated medically was 60% while those treated surgically were 30% and strongly advised the use of pneumothorax. One year later the same author⁶ reported an additional 8 cases treated by this method. Six of these recovered and two improved. C. L. Harrell reports one case with cure in a woman following labor. He maintained compression for 13 weeks with a total of nine refills using in all 3500 c.c. of gas.



Fig. 3. Lung abscess.

that the bronchoscope cannot be relied on as a routine treatment. Moore in a recent article published in the J. A. M. A., analyzing 13 cases given bronchoscopic treatment, gives 25% as cured, 41.6% improved and 35.5% unimproved. He states that multiple abscessed conditions with long standing bronchiectasis do not respond well to bronchoscopic nor to any other form of treatment. We have used artificial pneumothorax in a few selected cases and I believe that it offers a simple and fairly successful means of treatment. I find that Forlanini treated a case of putrid

Jakobaeus in 1914 reported three cases and Goldberg and Biesenthal also reported three cases with good recoveries. Morgan in 1922 reports four cases, one cured by posture, one by pneumothorax, one unable to do a pneumothorax due to extensive adhesions, and one death as a result of empyema following pneumothorax. Giese in 1922 cites five cases treated with pneumothorax with two recoveries. Barlow in a publication from the Surgeon General's Office gives

5. Tewksberry: J. A. M. A., March 10, 1917.

6. Tewksberry: J. A. M. A., Feb. 2, 1918, Vol. 70.

the following outline as to the procedure in lung abscess

1. *Foreign body abscess.* Bronchoscopic treatment indicated.
2. *Post influenzal diseases.* Pneumothorax almost impossible. If possible, it is usually contra-indicated by the nearness of the pleura and danger of rupture.
3. *Extra pulmonary suppurative conditions.* Pneumothorax not suitable.
4. *Aspiration abscess.* Indications for a complete pneumothorax at a very early date—at a later date, pneumothorax is impossible on account of adhesions.
5. *Infarct type of abscess.* Pneumothorax is usually impossible and is contra-indicated.

In this series of 22 cases, six were treated by pneumothorax, 4 by drainage and rib resection and 12 treated medically, that is, the routine treatment of rest, fresh air and posture. I will

globin 80%. Wassermann negative. Sputum negative for T. B. Placed on rest and posture with some improvement. However, he ran a rather intermittent temperature and pneumothorax was started. Small amounts of gas averaging about 300-450 c.c. of gas given frequently repeated. The patient recovered clinically, although the last plate shows a small density on the left side. He received a total of twelve installations of gas.

H. M. Age 44. Diagnosed moderately advanced "B." Pneumonia at the age of 12. Bronchopneumonia six years ago. In 1919 was operated on for appendicitis. About the tenth day after operation he developed a cough, expectorated yellow, pussy material,



Fig. 4. Same case. Pneumothorax treatment showing complete collapse.

cite a few of the cases with the histories, treatment followed and results.

REPORT OF CASES

F. W. Admitted with a diagnosis of incipient tuberculosis. Early history negative. In July, 1923, tonsillectomy performed under general anesthesia. Shortly afterwards began complaining of pain on the right side of chest. Developed a slight cough and sputum at times blood-streaked. Lost in weight. Sputum was very foul, greenish in color. Tonsils were only partially removed. Dullness and increased vocal fremitus over lower left chest with bronchial to amphoric breathing over the same area. X-ray showed a density from the region of the sixth rib downward. Right lung clear. Red cells 3,920,000, leucocytes 8,750, and hemo-

with high sweats and irregular temperature. He continued in this condition for one month coughing and expectorating a great deal of foul yellow pus. He had chills, tired feeling. The amount of sputum daily was about 3 to 4 cups a day. Dullness on the right lower border of chest from 7th rib downward. Sputum negative for T. B. Urine negative. A mild degree of leucocytosis. Treatment with pneumothorax was started. He received a total of 6,250 c.c. of gas extending over a period of seven weeks. Patient discharged as recovered. X-ray reported the chest clear.

J. M. Age 26. Timekeeper. Past history negative. Influenza in 1917. Following this he had a dry cough, loss of weight, tired feeling, and a diagnosis of far advanced pulmonary tuberculosis was made by his private physician. On admission he was expectorating great amounts of foul smelling pus-like material. Club-

bing of fingers. Crackling rales over middle lobe on right side. X-ray showed a density of the right middle lobe. Diagnosed as lung abscess and treatment with artificial pneumothorax was started. He received a total of 5,900 c.c. of gas over a period of eleven weeks. During the treatment he developed a slight effusion, which cleared up gradually without interference. He made an uneventful recovery.

B. M. Age 46. Tonsillectomy in 1922 under general anesthesia. Prior to that time he was perfectly well. Ten days after his operation he was taken sick with cough and pains in his chest, and a diagnosis of pneumonia was made. Ever since he has continued to cough a great deal expectorating large amounts of pus. Chills and fever at times. Lost 20 lbs. in one year. Night sweats and pains in his chest at times. Mild dyspnea, occasional blood-streaked sputum, with clubbing of fingers. X-ray showed the right lung dense from the third to the seventh rib. Dullness over this area with cracked pot resonance. Sputum negative for T. B. Temperature ranges from 99 to 100. A number of attempts have been made to institute pneumothorax treatment but without success due to the extensive adhesions. He was advised to have surgical interference but this the patient refused. Discharged as unimproved.

R. Z. Age 17 years. Female. Has been in sanitariums for the last ten years. Diagnosed as empyema, tubercnlosis and bronchiectasis at various times. History of pneumonia at the age of six and coughing continuously since then. She is well nourished. Has clubbing of fingers, foul odor on coughing and breaking up great quantities of pus during the day. She has had frequent acute exacerbations when she runs a temperature of 103 to 104 lasting 4 to 5 days. Dullness on the left side from 4th to 9th rib. X-ray showed a mass adjacent to the heart. Was seen by a number of surgeons and all refused to interfere due to the close proximity of the pericardium to the abscess. Pneumothorax was started and she is now under treatment. Has received a total of 3,400 c.c. of gas. Expectoration has almost completely disappeared. The last plate shows the extent of the abscess greatly diminished. While I do not hold out hope for a complete recovery, I feel that the improvement is very marked.

Summary. Lung abscess is a rather frequent disease and must be differentiated from pulmonary tuberculosis, the x-ray being a valuable aid in making the diagnosis. Pneumothorax is of great aid in all cases of lung abscess if started early. The chronic abscess does not respond well to pneumothorax. Here surgery should be tried. Simple resection with drainage is only a make shift and does not offer a permanent cure. Two of our cases have been draining for months and, although they are improved, further surgical interference will be necessary. I am not in a position to discuss lobectomies nor bronchoscopic treatment as it has not been used in any of our

cases. The results obtained here by pneumothorax were by far the most satisfactory, and in selected cases should be tried first before undertaking extensive surgery.

LUNG ABSCESS—ANALYSIS OF 22 CASES

<i>Etiologic Factors</i>	
Tonsillectomy	7
Appendectomy	2
Measles	1
Pneumonia	2
Influenza	1
Bronchopneumonia	2
Unknown	7
<i>Ages</i>	
Range from 10 to 57 years of age.	
<i>Sex</i>	
Male	14
Female	8
<i>Location</i>	
Upper lobe right.....	6
Lower lobe right.....	5
Upper lobe left.....	3
Lower lobe left.....	1
More than one lobe right.....	3
*More than one lobe left.....	4
<i>Results of Treatment</i>	
Pneumothorax: 6 cases	
Cured	2
Improved	3
Stationary	1
Thoracotomy and Draining: 4 cases	
Improved	2
Not improved.....	1
Deaths	1
Medical: 12 cases	
Cured	2
Improved	6
Stationary	4

DISCUSSION

DR. R. H. HAYES, Chicago, opening the discussion, said: In the treatment of pulmonary abscess I want to give you a word of caution. The location of the abscess must determine the line of treatment, together with the length of time that the individual has been affected with the abscess. In early cases of pulmonary abscess following acute infection such as pneumonia or foreign bodies, the abscess is usually very rapid in its formation. Again, just a few days or weeks may elapse after tonsillectomy before the first symptoms of pulmonary involvement begin, followed by abscess formation, due to aspiration of blood, tissue, etc. The infection may get into the lung as a secondary focus, by way of the blood stream or the lymph stream, then to the periphery or interior of the lung, where the abscess may be located.

Those of the first, or early type, are abscesses usually beginning in or near the root of the lung. If they are well within the substance of the lung, or well toward the middle part, you have a more difficult condition to deal with. If the abscess is shown to be near the periphery of the lung, we have a still more dangerous type. I will not discuss the surgical aspect of treatment, but will from the artificial pneumothorax standpoint. In giving artificial pneumothorax we must be guided by the length of time the individual has been affected, as well as the location of the abscess.

In the early stages in which we have an inflammatory or pneumonic condition existing with abscess draining. I believe from personal experience that artificial pneumothorax is absolutely against all precedent. We should wait and should treat these cases just the same as we do any pneumonia case. These cases do not as a rule go to rapid termination, but are persistent, the abscess beginning to subside rather

slowly, but progressively, and as a rule will rupture into the bronchus and the material be expressed. This type does remarkably well with artificial pneumothorax if the abscess is near the root of the lung. The type that usually expresses large quantities of putrid material is the type that forms near the root of the lung, and does not need artificial pneumothorax as a rule.

Now, the peripheral abscess. This is the type we get into trouble with. I have attended two. One was of only a few weeks' duration, persistent and with no evidence of draining. The x-ray findings were not conclusive as to exact location, and as the infiltration was dense in surrounding tissues, no definite walling off had occurred. Knowing the dangers, but with the solicitation of the doctor, I gave artificial pneumothorax. The abscess ruptured into the pleura and the patient died before drainage could be done. I learned then to be more cautious. The type with the peripheral involvement should not be given artificial pneumothorax, unless a definite time has elapsed to allow a firm wall to form. You are crowding upon densely infiltrated structures, and we have the weakest structures near the periphery, as natural drainage is toward the hylum. If you attempt to puncture the pleura, especially in marked involvement where there is a plastic pleurisy usually existing, you are many times more apt to go into the lung than you are in tuberculosis. The x-ray must be your guide as to your procedure.

In the early onset of the abscess, proper symptomatic treatment must prevail and precede artificial pneumothorax. Open operations and drainage must be considered, but as I have already suggested most of these abscesses will rupture into the bronchi and the contents be expressed. It is in these cases where there is little chance for the material to be expressed, if the abscess persists for several weeks with very little prospect of emptying itself, and the x-ray shows the position of the abscess with more or less dense tissues surrounding it, which must be your guide as to the safety of artificial pneumothorax, with the amount of gas, and the general character of your treatment.

Never attempt to give gas early in deep seated abscesses, but wait and allow definite peripheral walling off to occur, then the slow administration of small quantities of gas will eventually collapse the lung and allow the material to be expressed, with the final result of the formation of fibrous tissue and obliteration of the abscess cavity, or nearly so.

DR. DON DEAL, Springfield, said: I just want to make two points. First: a direct lateral x-ray is of great value in the diagnosis of lung abscess. In fact it is just as important as two views of a fracture.

The second point is along the radical treatment of these cases. Up to this time in lobectomy the mortality rate has run as high as 50 per cent. Lillianthal reports thirty cases with 50 per cent.

Drs. Palmer, Cole and myself two years ago worked out a technique which I think will reduce mortality to 10 per cent. or less. We feel that the proposition is going to revolutionize chest surgery, that it is going

to improve the technique and improve the results. It is peculiar that through all the war surgery, and the experience since, no one has thought of this simple method.

The shock that is received, the terrible percentage of mortality, has always been attributed to pleural shock, it is nothing but the sudden change of pressure. So if we can get around that, if we do a preliminary pneumothorax, gradually building up to atmospheric pressure, or better than atmospheric pressure, at the time one operates we will not have the sudden collapse. The patient will be acclimated to the change of pressure. You will not have mortality, you will not have the sharp increase of pulse, you will not have the elevation of temperature. The pallor and shock will not occur. We have had cases operated on which have not had as much reaction as we have in the average lobectomy. So we think that with the preliminary pneumothorax the mortality will be decreased, it will relieve a lot of worrying and do away with special pressure apparatus.

DR. HERMON H. COLE, Springfield, said: I would like to ask the doctor a few questions about this condition. I think this is one of the most interesting subjects in the whole field of medicine.

In the first place, what about the sputum condition? Did you work out the bacteriology of these cases and find what the infecting germ was?

Second: How great a collapse was instituted? Did you aim at a complete pneumothorax or were you satisfied with a partial?

A third point I think is of great interest in the percentage of failures which one will get in these cases on account of adhesions. Most of these lung abscesses, if they are of long standing, six months or more, sometimes much earlier than that, will have extensive adhesions, and pneumothorax is impossible.

Another question is, whether the upper lobe or lower lobe is the most favorable to collapse. Is the upper lobe more favorable than the lower?

Another thing I think is important is the fact that a pneumothorax in the lung abscess should not be used unless there is drainage by way of a bronchus. To do so is contrary to surgical principles. I think unless you have the drainage tube already established we should not use pneumothorax.

It is well to remember also that artificial pneumothorax can be used advantageously as a preliminary to other intrathoracic manipulations, as Dr. Deal and I have demonstrated here. By a preliminary collapse we have found it possible to avoid most of the shock incident to opening the chest.

This holds in lobectomy, for bullet wounds of the chest, foreign bodies and a number of other conditions. In the cases we have had, the value of preliminary pneumothorax was unquestionable, and we feel we have something that is rather valuable in this connection.

DR. H. B. BOONE, Chandlerville: Did you ever have the experience of the rupture of these abscesses, and what was the condition of the patient following rupture of the abscess?

DR. P. S. WINNER, Chicago: As far as answer-

ing the question about rupture of the abscess, do you mean rupture into the bronchus?

DR. BOONE: Yes.

DR. P. S. WINNER, Chicago, closing the discussion, said: As I mentioned, one child following tonsillectomy, had a rupture of the abscess in the bronchus, with rather prompt recovery in a few days. The cases I have seen have all been of the bronchus type. I have not seen the encapsulated type which has been mentioned. I agree with the doctor who said that is not a case for the pneumothorax treatment.

We worked out the sputum findings in a number of cases. The findings were rather indefinite. I say indefinite in that we had numerous contradictory reports Streptococcus was reported in one case; the others were mixed infections. We had a number of cases where we were in doubt. I am not satisfied as to the sputum findings in all cases. That is, they are not alike.

As to complete collapse, I would say I find that complete collapse is indicated in all cases.

I am very much interested to know that you have done work with pneumothorax prior to lung operation. I was just wondering what you would do in cases where you can't get in to do pneumothorax. I have had a number of cases where I tried ten or twelve times and failed to get in. Those are the cases, of course, that are going to be a problem. I know that Graham of St. Louis has done considerable work in lung abscess, good work, and I think the mortality he states is 30 per cent.

I was interested in one case Dr. Hayes mentioned. What happened to the patient? Did the rupture go into the lung or the pleural covering? What happened in that particular case? I do not agree with Dr. Hayes in saying we should wait in our lung abscess cases. The most striking case I had was a little girl, ten years of age, brought to me ten months following tonsillectomy. I am sure if pneumothorax had been given early in her case we would not have a chronic condition. Now, the girl is draining satisfactorily, of course, but I think we are going to have a chronic condition there to deal with later on.

INFECTION, AND ITS RELATION TO GENERAL AND LOCAL DISEASE*

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The progress of civilization has been rapid within the last few thousand years of the long period of man's life in the world. Whereas in the past, advances and regressions by reactions required hundreds of years for the cycles they are now made in decades.

Hippocrates mentioned the fact that some recurring diseases affected persons having an-

other chronic disease area, which if removed, also cured the recurrent disease. Benjamin Rush, in 1800, in discussing the same conditions, reported cure of such disease by the extraction of a diseased tooth.

With constantly accumulating knowledge at the command of the many, the mass destroyers of life have been controlled and almost eradicated by the destruction of insect and animal carriers of disease, by the control of human carriers, by quarantine of diseased persons, by vaccination and by serum inoculation to raise the threshold of body resistance to the infective microbe, thus increasing the ordinary quantity required of the infective agent manyfold, and usually far above that of ordinary contact exposure or that obtained in food and drink. Our domestic animals are also thus protected, and our country saved from the great economic losses sustained in the past.

Such principles of disease prevention were laid down by Jenner in vaccination against smallpox.

The great world benefactor, Pasteur, showed scientifically why and how disease was transmitted, and the rationale of its prevention in plants and animals as well as in men.

The various disease organisms have nearly all been identified, their action proved, and thus controlled by experimental animal research.

Billings gave a fresh impetus to the study of the disease which impaired man's usefulness or caused his death, rarely quickly, but slowly and surely, from neglect of small matters pertaining to health. Local infections were known to exist, but considered of little importance by physicians and the public. Often such areas of disease are not recognized because painless and invisible, and they are of such common occurrence that they are not appreciated. It is most difficult to sustain the interest even of those who are suffering during this decade, when a period of reaction is occurring. When this is over advance will again be made beyond proved ground: the ebb and flow of the tide of progress.

In the field of general medicine the greater dependence on laboratories has reduced the power of observation, while in the field of dentistry there is more to be seen relating to acute and chronic disease than elsewhere. The serious infections and contagious diseases of the world, destroyers of human life in mass, have now

*Read before the Inter-State Post Graduate Assembly of America, Milwaukee, Wisconsin, October, 1924.

almost disappeared through knowledge of their cause and prevention. By paying more attention to the prevention of diseases which destroyed the lives of babies and children, as well as those of older persons, we have advanced the average lifetime of man to fifty-eight years. Now man is dying an individual death; few of those who should know, and almost none of the public, seem to appreciate the fact that sickness and death from acute or chronic infections (those bacterially caused) account for 87 per cent of all deaths.

One-third of our young men from twenty-one to thirty-one years of age were wholly disabled for war duty, as shown by the draft: 7,000,000 were examined but only 4,500,000 were accepted, and 47 per cent of the latter had defects worthy of recording. The diseases and disabilities of the majority of those rejected were largely owing to the lack of knowledge of parents, or whole communities with regard to disease, its cause, and prevention.

The hardening of blood vessels; the changes in many chronic brain lesions: disseminated sclerosis of the spinal cord; chronic nephritis; stones in the kidney, ureter and bladder; the recurring rheumatism of muscles and joints, large and small; the chronic recurring diseases of the eye; iritis, retinal and choroidal troubles, and neuritis, are some of the more common diseases which we now know to be due to infection. Investigation has proved that those who suffer from such diseases carry a focus which, with varying degrees of health, exhaustion or even climatic changes, may afford an opportunity for the bacteria to be thrown into the blood stream and create a recurrence of those diseases which, in the past, were treated as entities, primary, not secondary, as we now consider them. The greater percentage of such infective foci are in the mouth; small, closed alveolar marginal pockets, abscesses at the roots of dead teeth, and devitalized and crowned teeth, all afford opportunities for infection leading to an early break in health. They may locate in the heart and thus add to the high and still growing death rate from heart disease: 150 deaths occurring from this cause each year in 100,000 in this country and usually without warning. Fortunate indeed are they who have the secondary foci in a nerve, as neuritis, or in a muscle, as muscular rheumatism, so that

time and opportunity may be afforded for investigation.

Only a very few old persons have fully preserved teeth; in fact most of them have lost their teeth and have worn plates since the fifth decade of life. A dead nerve in a tooth will prevent appreciable local reaction, and although possibly enabling its possessor to eat better for a time he is conducting his health on borrowed capital, as he may not have a physician or a dentist who will appreciate that the sickness or broken health which may develop is due to such an apparently trivial cause.

We ask much of the x-ray in the investigation of teeth and jaws. The infecting substance may present a shadow so small that even in a tooth known to be infected it does not show, or it may be lost in the range of the shadow of the tooth itself. By those who understand the reading of plates much may be ascertained from nature's handling of calcium in comparing bone conditions of the two sides of the jaws, and with other infected teeth; the condensing or rarification indicates nature's type of defence against infection by walling off an infected area or increasing its blood supply after the removal of the calcium. Comparatively few physicians understand the reading of such plates. The condition of the teeth then means much to the one who is searching for the focus of infection and type of tissue reaction, also to persons now comparatively well who may in the future develop a variety of diseases which destroy health and happiness, if not life. Because the secondary lesion is not recognized the dangers of focal infection are discredited until too late, in cardiac, renal and vascular diseases.

The tonsils, as a rule, carry the same organism as that which causes the loss of teeth, each individual probably having his own specific organism which may be wholly different from that of his neighbor or other members of his family. For example, mine is the *Streptococcus viridans*; others may have *Streptococcus hemolyticus*, as well as other varieties of the green-producing streptococci. Such organisms may have an affinity for almost any tissue in the body, and by not cleaning up focal infections to-day persons are neglecting themselves until such time as they are again laid up with troubles of known or unknown cause, and are dependent on the interest dentists and physicians may take in the investiga-

tion of the cause. If one case is erroneously considered the result of focal infection due to bad teeth, regardless of the condition of the teeth, and if they are removed without relief of the secondary disease, it discredits the theory of focal infection and its elimination, with all who know the patient and with the dentists and the physicians concerned. In many cases the tonsils have not been eliminated, or there has been no x-ray examination of the jaws and teeth, local evidence being depended on to instigate special examination.

With regard to infection of the tonsils, consultation with the throat specialist may leave the condition still worse, as he might consider that the small tonsil, size 1 or 2, gave no evidence of disease, even if the history indicated that the patient had had many attacks of tonsillitis in early life. For tonsils graded 3 and 4, large because of reaction against infected pockets within them, the specialist would recommend removal, although their size and reaction then usually confers immunity against their causing focal diseases at a distant point. Small tonsils with small pin-head abscesses carry as much infection as would several teeth with root abscesses.

Besides in the teeth and tonsils, infection should be looked for in the prostate and seminal vesicles, and in the cervix uteri, especially the glandular areas behind the cervical lining. In these areas there are usually various types of streptococci which cause the rheumatism of the small joints, and the myocardial and renal infections. In young men they also account for rheumatism of the large joints, being then due to gonococci and associated bacteria. Why are some persons more susceptible than others? The susceptibility is an inheritance, the amount of resistance being due to the mineral content of the blood. There are but fourteen of the ninety-two elements that make up the world which are carried in the blood in almost an exact quantity, sustaining, replenishing and rebuilding in health. At some period in the life of all persons there comes a break in the absolute stability of one or more minerals which changes the resistance of the blood, and makes them susceptible to disease germs. Blood tests will show these changes, and if we desire to know the danger of foci that we carry with us, they may be inoculated into animals, and by their selective affinity for the differ-

ent tissues of the body will show quite definitely where our danger lies.

A study of the calcium in the world shows that the great bulk of lime and its principal compound are formed by cell life from calcium in solution. A small amount is combined in other ways as by crystallization. Limestone has been formed by bacteria since the Cambrian period of the world's history. Calcium compounds are now being formed in the sea in the same way as in past ages by the most common and numerous sea bacteria known. In 1915 I predicted that it would be found that stones in the kidney and bladder, like pearls in mollusks, were formed by microbial action.

In 1922, Rosenow and Meisser were able to produce stone in the kidneys of dogs by creating root abscesses of their bicuspid teeth with streptococci from the urine, teeth and tonsils of patients with stones in the kidney. Under anesthesia the dogs' teeth were ground to expose the pulp which was removed with the root nerves, the streptococci were then placed in the cavity and the teeth crowned or filled. Calculi, or calcium lesions in the kidney were thus produced in 87 per cent of the dogs infected from nine patients with stone in the kidney. During this research other infections of the kidneys were developed and lesions bacterially produced which simulated the acute and chronic renal diseases of man.

DIATHERMY IN MEDICINE AND SURGERY*

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The value of diathermy as a therapeutic agent was not fully realized by the medical profession until the World War demonstrated its wide scope of usefulness on a large scale. It will be recalled that from 1918 to 1920 over one million diathermic treatments were administered in the military and reconstruction hospitals. This one fact taken from official records serves to show the confidence in that agency by our government, a confidence which is justified by the curative results.

It is no exaggeration to say that diathermy has contributed immeasurably toward the restoration

*Read at the December meeting of the Peoria Medical Society.

of otherwise hopeless cripples and invalids to lives of usefulness.

Naturally these weighty lessons have made a deep impression on many clinicians in civil practice of medicine and surgery. In spite of these advances, however, diathermy has not yet become as popular in the profession as it merits, and many practitioners of medicine maintain confused ideas regarding its characteristics and properties. It may, therefore, not be amiss to discuss at length the definition, physics and physiology, and applicability to disease of diathermy.

Electrophysiology teaches that an electric current of high frequency passing through living tissue generates a certain degree of heat, dependent upon and in proportion to the resistance offered by the tissue, and that the heat thus generated is the result of a transformation of electric into caloric energy within the tissues. The word *diathermy* is derived from two Greek words means to "heat through," and is the accepted term for the method of localizing or directing varying degrees of temperature within the tissues of the body by a current of high frequency. Professor Zimmern of Paris defines diathermy as a form of thermo-therapy which utilizes electric energy for the production of thermal effects in the depths of the tissues. This, however, is merely stating a half truth, for conductive heat by a hot water bottle or radiant heat from an incandescent lamp also conveys heat to depths of tissue, by virtue of an active circulation carrying away the excess heat from the skin surface into the greater depths of the body in general. Such form of heat, however, is usually disseminated instead of localized. Medical diathermy as contrasted with surgical diathermy means the heating through of parts of the body, or the establishment of a local pyrexia, within any desired depth of the body, to a degree insufficient to destroy the tissues or impair their vitality.

Historical Sketch.—While high frequency currents have been the subject of research for many years, they were not considered of any importance in medicine until D'Arsonval, in 1890, repeating certain experiments of Ward on alternating and sinusoidal currents, showed that currents having an alternating frequency higher than 5,000 oscillations per second, diminished contractile impulses in excitable tissue. This research hardly produced a ripple upon the medi-

cal firmament until Nikola Tesla in 1891 demonstrated that by using rapid oscillatory discharges from the Leyden jars, larger currents of high potential could be passed through the human body without any untoward or painful effects, and that heat was the concomitant effect of these currents.

In February, 1891, D'Arsonval first used high frequency currents—now called diathermy—to traverse the human body, and in a communication to the Société de Biologie stated that he had passed 3,000 mr. of current through himself without any sensation other than that of heat. Subsequently, in 1898, D'Arsonval showed that high frequency current could modify some of the physiological processes of the body. His conclusions, drawn from ten years of investigation, proved that currents of high frequency raised the respiratory exchange, stimulated the output of heat, caused peripheral and vaso-dilation and sometimes lowered arterial blood pressure, and increased the nitrogenous bodies and phosphate in the urine.

German scientists were quick to appreciate the possibilities of D'Arsonval's researches, and became very active in carrying investigations a step forward. In 1897 Franz Nagelschmidt, of Berlin, demonstrated that high frequency currents produced a heating through of tissues and recommended this treatment, which he named "diathermy," for articular and circulatory disturbances. In 1898 the same author, at a congress in Budapest, presented a diathermy apparatus designed by himself, which produced greater heating qualities than the older model of D'Arsonval. In a conjoint paper published by Von Berend, Von Preiss and Von Zyneck, in February, 1908, on the treatment of joint diseases by high frequency currents, these authors laid stress on the production of heat penetration as the important part of the action of the current. In 1909, Sir Lewis Jones established diathermy as an important adjunct to the other specialties in St. Bartholomew's Hospital in London. The recognition given to this modality in that hospital was no doubt due to the scientific investigation of the physiological action of diathermy on diseased structures by Jones, and independently by Elkin Cumberbatch. In America, the spread of physiotherapy was sporadic and scattered; while scientific investigation of diathermy was carried on by a negligible

few. However, the work of DeKraft on the physiological action of the high frequency current compels dignified recognition. The publication of the postbellum experiences of Colonel Granger and Major Christopher Sampson has placed diathermy in the front rank of medicine as a scientific adjunct of modern medical therapeutics. From a purely mechanical viewpoint mention must be made of the reduction of the various types of apparatus from ponderable, noisy types, to the flexible, mobile, silent appliances of today. The innovation of the new spark gap represents an improvement over the older types of diathermy apparatus, possessing greater effectiveness and flexibility.

Physics of High Frequency Currents.—A brief exposition of the physics of currents of high frequency together with the necessary steps in its evolution, is of importance to every physician interested in diathermy. When an ordinary low frequency current of 110 or 220 volts, alternating type, is actively connected to an iron core that contains opposite insulated wiring, the secondary windings being numerically in excess of the primary, an induced electro-magnetic field occurs, and the current is thus stepped up to an enormous voltage. This is known as the primary transformer, which carries powerful voltage, although the frequency or oscillations are as yet unchanged. A current of this type would traumatize muscles and nerves, fracture bones and endanger life. To overcome this danger, the wires of the secondary winding are formed into a circuit that includes a spark gap, Leyden jar condensers, and the primary of a secondary coil of wires known as the D'Arsonval, Tesla or Oudin current. Thus, while the first step in the transformation of a low frequency current is a raise of voltage, the second step is an increase in frequency, for this important step must be accomplished before the current is safe for use. The spark gap and the condensers acting in the capacity of storage and a frequency step up, by virtue of its limited holding capacity, perforce must soon discharge its contents into conductors or wires of lower resistance. This coil of wires is the true D'Arsonval circuit from which the current from the condensers flows to and from the spark gap, while the resistance or damping effect met at the spark gap, again fills the empty condensers. The product of this activity of the filling and emptying of the condensers, and the

resistance encountered at the spark gap, is the establishment of an oscillating alternating current of a frequency of about 1-2½ million oscillations per second. Through these steps we satisfy voltage or pressure in order to create high oscillating frequencies, which produce amperage or heat without pain or trauma. If the Tesla or Oudin current is to be used, a third step is necessary, and that is to raise the voltage a second time; although the frequency is not changed, the amperage in order to satisfy the law of energetics, goes down as the voltage goes up. A D'Arsonval current maintains high amperage or heat, and relatively low voltage, and the Tesla-Oudin current maintains high voltage and comparatively low amperage, or heat.

We have already mentioned that diathermy is synonymous with a high frequency current, *i. e.*, a current which changes its alternations or oscillations or frequency about one million times per second. In order to place heat within certain regions of the body, one must first overcome the tremendous resistance of the skin, which entails a current of gigantic strength or voltage, and at the same time maintain a current of lowest stimulation to excitable or contractile tissue. Thus the high frequency current, accidentally discovered by D'Arsonval, as described above, ideally fits the condition, for it is a current of high voltage and heat or amperage, and contains the high oscillating frequencies that sedates all excitable tissues.

Physiologic Effects of Diathermy.—Those who have investigated the physiologic effects of diathermy are agreed that this energy penetration first manifests itself as converted heat, and that this heat is endogenous in character and variable in intensity according to the size of the active electrode. We hold with Weyth that the term "endothermy" offers a better explanation of the activity of the high frequency current within the tissues than that of "diathermy." The heat thus created, whether due to the resistance of the tissues offered to the penetration of the high oscillating current, or to Turrell's conception of the hydrogen ion concentration accompanied by an intercellular friction resulting from the oscillations of the high frequency current, is productive of still further physiologic changes. The immediate effect is a transitory stimulation of the *nervi nervorum*, followed by a quickened arterial and capillary circulation

and a vaso-dilatation of the blood and lymph vessels. This is followed by an enriched vascularity between the poles, which also results in an effusion of serum into the extravascular spaces, a stimulation of phagocytosis and a concomitant sedation of the treated part.

Pain is relieved by the analgesic quality of heat upon the nerve endings, toxins are removed by the efferent blood and lymph stream, and the treated part is materially enriched and softened by increased circulation. The bactericidal effects of the physiologic heat within the tissue was demonstrated in the recent literature, from which we learn that the thermic dose lethal to bacteria is in no way detrimental to the structures treated.

DeKraft in his studies of the physical effects of diathermy on the body, says that "congestion, wherever present, is relieved because of the marked activity of the internal circulation. Anemia of the splanchnic area ensues. Visceral congestion is relieved. The liver, the intestines and other organs within the abdominal cavity are made to disgorge the stagnant pools of blood which bathe their structure. When the action of the diathermic current has subsided and the blood stream returns again to its normal channels, freshly oxygenated arterial blood enters in great abundance into the previously anemic and (before the heating) venously congested areas. The parts are placed in a better state of defense against the invasion of toxins and bacterial colonies."

Réchou, in *Archiv. de Elect. Med.*, March 10, 1913, quoted by Cumberbatch, investigating the influence of diathermy on the respiratory exchange during and after diathermic seances, concludes that "the patient gave off less carbon dioxide, and consumed less oxygen after thirty minutes of diathermy. At the beginning of the treatment the oxygen intake and the carbon dioxide output both increased. Before the diathermy, the oxygen consumed (during ten minutes) was 2.95 liters. At the beginning of diathermy the oxygen consumption was 3.63 liters, but after the diathermy had lasted for thirty minutes, it fell to 2.14 liters. The figures for the carbon dioxide output were—before diathermy, 2.62 liters; the beginning of diathermy, 3.16 liters, after thirty minutes diathermy, 1.96 liters." The final effect of diathermy, therefore, was to spare the thermogenic mechanism of the

body; less heat was formed within, as more was supplied from without. Diathermy could also replace part of the food required, by its caloric value, and hence rest the digestive apparatus. The same author found a considerable amount of acetone in the urine of stout patients after diathermic application. This, he says, is possibly due to liquefaction of fat, the excess in the blood being incompletely used up.

Nagelschmidt found diathermy to have a stimulating effect upon human cells and glands.

According to Bergonie, general diathermy i. e. auto condensation in elderly people suffering from hypothermy or a state of "Misère physiologique," or in conditions of inanition, is followed by improvement in appetite and general health. Digestion improves and weight is increased. The soothing effect upon the nervous system promotes sleep and a general feeling of well-being.

Studies of the influence of diathermy on metabolism and blood pressure have demonstrated to the writer as well as to other investigators, that diathermy applications over the entire body, in the form of autocondensation, increased the elimination of total solids in the urine, had a pronounced effect on the blood pressure and the pulse rate, lowering the pressure temporarily or permanently, according to the nature of the condition, and increasing the pulse rate during treatment. The respiratory movements were increased in amplitude and rate. Artificial general pyrexia resulting from an autocondensation treatment differs from ordinary pyrexia in that it is not produced by toxins circulating in the blood, and, while the thermogenic centers are spared during the treatment, the heat regulating mechanism quickly eliminates the excess of heat and the temperature returns to normal with added benefits from such treatments. Thus diathermy relieves pain, sedates the affected part, removes toxic waste products by virtue of a hyperactive circulation and carries with it bactericidal and metabolic potentialities.

Amongst circulatory disturbances one of the most distressing complaints is that condition known as angina pectoris. The value of the heat penetration from diathermy upon the sclerotic coronary arteries and the heart musculature is evidenced by an immediate cessation of the spasm or pain. The oppressive restlessness and the feeling of anguish cease after a few minutes of the

treatment. This is a spectacular demonstration of the value of diathermy because the distressing symptoms are greatly relieved with the first application. If, however, prompt relief is not obtained, it is reasonable to assume that we are dealing with an aneurism or a grave myocarditis.

Recent literature has further evidenced the indication of diathermy in such conditions as chronic bronchitis, the asthmas, and in particular, the pneumonias. Stewart of Yale cites the value of diathermy as fairly specific in the treatment of pneumonia. Every case thus treated by him recovered by lysis, while the mortality in his series of 120 cases was somewhere around 7 per cent. In the face of the usual heavy mortality in the larger hospitals, the early treatment of pneumonia by diathermy presents a good prognostic outlook.

In sciatica and brachial neuritis, my experience in private practice and at the Cook County Hospital, has been unusually satisfactory despite the divided opinions of foreign authorities. In a recent series of eleven cases of subacute and chronic types, ten have obtained relief from all symptoms. My odd failure can be attributed largely to a friendly regard for the patient, a factor which definitely interfered with regular unbiased treatment. This patient, an active member of the bar, satisfied with temporary relief, gave only spasmodic attention to his ailment. Diathermy is a most valuable aid in maintaining the nutrition of the affected nerve and is therefore an important adjunct to other forms of therapy.

Before instituting treatment of any sort in sciatica and brachial neuritis, obviously one must first of all make sure of the diagnosis. Focal infections both of entrance and exit must be duly considered and eradicated. Orthodox, conservative medication must be included in the treatment whenever indicated. Active daily diathermy is given over the exit of the nerve in the following manner: a 2x5 mesh or tin electrode is placed over the lower cervical and upper dorsal spine and a large cuff electrode is wound over the middle portion of the arm on the affected side. In this manner the patient derives the maximum benefit from the physiologic heat as already described. For sciatica the active electrode, size 2x8, is placed over the lumbar region and a large indifferent electrode, 8x10, is placed opposite, over the abdomen. The heat to either

spine should be comfortably warm, or one may gauge the amperage from the meter, which should register 800-1000 in the former and 1000-1200 in the latter. After the parts are diathermized for twenty or thirty minutes, the sinusoidal current is connected to the same electrode for five or ten minutes. This current, acting in the capacity of a molecular massage, further helps in decongesting the involved area. It is seldom necessary to resort to minute doses of x-ray in these conditions except in cases of long standing. The action of ionizing doses of x-ray in indolent conditions has been scientifically established by Major Sampson in the reconstruction hospitals in the east. That it is a definite synergist in the chronic types of neuritis is manifested by the beneficial results that follow these treatments.

Inflammation and Degeneration of Muscles. In acute myositis, whether traumatic or rheumatic in origin, diathermizing the affected part with parallel or lateral plates gives the quickest results. Lateral or longitudinal plating carries the heat more superficially and by conduction; hence it reaches the inflamed structures more readily. The dosage in M. A. depends as usual upon the size of the electrodes and the sensitivity of the patient. Anesthetic parts should receive due care and consideration.

Torticollis or wry neck of the muscular or neurotic type in the acute stage practically yields with the first treatment of a combination of radiant light followed by diathermy. The technic which has found most favor in my service is: a semi-circular strip of metal over the unaffected side of the neck and a larger and similar strip of metal over the acromial and on the effected side. The converse and radiant heat sedates and relieves the muscular spasm.

On the other hand, the chronic and paralytic types yield more slowly, but very definitely, to the combined measures of diathermy, negative surging galvanism and weekly ionizing x-ray treatments to the affected parts. In these latter types it is a question of prolonged muscle education of the sternomastoid trapezius and the deep posterior cervicals. The fibrolytic action of the ionizing doses of x-ray, the maintenance of nutrition by diathermy plus the softening and stimulating action of surging negative galvanism, are the methods of choice.

Lumbago, now regarded as a hypertonic state of the lumbar muscles due to the presence of

toxins or myosin crystals, readily yields to the conversive heat of diathermy, and the static Morton wave or sine current or the counter-irritating sparks of the non-vacuum or vacuum glass condensers. We personally prefer the non-vacuum type for its deeper penetrating powers if we are to use the glass condensers. By diathermizing the affected region with antero-posterior plates to the point of about 1500 M. A. for thirty minutes, followed by sine or Morton wave, the results are fairly startling in its beneficial effects. There are, perhaps, few conditions which enable a physiotherapist to impress his patient so quickly with the curative power of electricity as that of lumbago.

Injuries of Joints, Sprains and Strains. In sprains or strains of muscle of the joints of the long bones, the value of physiotherapy can be quickly demonstrated. Ruling out the question of fracture by x-ray, the method of choice is diathermy via the cuff technique. The cuff method should be the one of preference because the nature of the injury is primarily one of soft tissue trauma, with a secondary involvement of the capsule and cartilage. By using cuffs the diameter of which is one-half the thickness of the injured part, we insure superficial as well as depth penetration, throughout the traumatized parts, and an equalization of heat between the electrodes. Furthermore, the decompressor action of conversive heat stimulates and acts upon the afferent circulation to remove the increasing effusion of the part as well as to relax the musculature and to sedate the local nerve injury. In association and following the diathermy treatment immediate application of the rapid surging sinusoidal current—or the static machine with the Morton wave is of utmost importance. The well-known compressor and contractile qualities of the foregoing rhythmic currents tends to remove the extravasated fluid and swelling, and to tone up the injured parts. Progressively the pain, swelling, numbness and stiffness, which are the cardinal symptoms of this condition, will disappear in direct ratio to the rapidity with which treatment is instituted. Moreover, the customary troublesome sequellae of organized adhesions, fibrosis or ankylosis will be nullified to a negligible degree. A word of caution may also be added in the treatment of sprains; although the pain and swelling may have disappeared within a week or less, it is advisable to consider the injury as undergoing a

period of convalescence in that the limb should be guarded against undue or excessive activity for at least a period of two to three weeks.

Arthritis. Contrary to the usual laudatory opinions of many physiotherapists regarding their results obtained in cases of arthritis, ours have been variable from extreme satisfaction to keen disappointment. While in all of the arthritides electrotherapeutic measures offer immediate alleviation of the symptoms, experience has taught us that the relief in the toxic types is merely transitory.

The migratory tendency in the subacute toxic type does not lend itself to an early eradication of all symptoms with diathermy unless used in conjunction with other measures, such as removal of focal infective points, proper diet and complete elimination either by drugs or other methods. Each treatment, however, temporarily relieves the painful parts and the patient acknowledges beneficial effects.

It is with a sense of satisfaction that we can attest to permanent relief in the arthritides of the Neisserian type. Heretofore, arthritis following specific infection has been the bane of the urologist. This type tends to prolonged chronicity, and patients so afflicted finally drift to the doors of the charlatans.

Diathermy is a potent remedy in gonococcal arthritis when applied alternately over the prostate and to the affected joint. Raising and holding the degree of heat within the peri-prostatic and the peri-articular tissues from 105 to 114 degrees F. is of utmost importance, for the diplococcus is definitely destroyed by this heat. The inflamed tissues themselves are concomitantly benefited and the patient recovers speedily.

Traumatic Arthritis. Some of the best results yielded by electrotherapy are obtained in traumatic arthritis with the combined method of diathermy and the surging wave current. Chlorine ionization has found its best and most enthusiastic advocates in France and England. Its usefulness in fibrositic joints and scar tissue has been brilliantly demonstrated in the late war, especially by Leduc of France. His research work in the field of ionization is now classic literature. The polar effects of the continuous current carry many possibilities, not only in chronic arthritis, but also in many of our specialties. I mention the successful treatment of otorrhea with ionization as an example.

In osteomyelitis following the removal of the sequestrum, and the establishment of drainage, combined use of diathermy by the plate method, alternated with the air cooled actinic lamp, is practically specific. We have observed many cases, which have come to our service with the poorest prognosis, get well under this combined therapy. It is also surprising with what certainty function is re-established, regardless of what the prognosis has been at the outset.

SURGICAL DIATHERMY

From an historical standpoint, surgical diathermy came into active use a decade earlier than medical diathermy. Reviere of France first reported the use of the high frequency currents in malignant neoplasms by the arc or sparking method, in 1900, at the Congress of Electrology and Radiology held in Paris. He claimed distinct improvement in late carcinoma with the high frequency Arc. In 1907 the distinguished gynecologist, Pozzi, reported to the Academy of Medicine of Paris, the cure of superficial and even of some deep-seated cancers by the action of the so-called Oudin sparks. Franz Nagelschmidt, following the technic of Pozzi, confirmed the latter's experience that distant sparking, or fulguration, merely carbonized the tissues superficially.

It remained for the brilliant surgeon, Eugene Doyen, of Paris, in 1907-10, to demonstrate the proper application and the true effects of the electrothermic current. In the main, his technic was similar to that used to-day, "Electrocoagulation" is a word of his coinage. For the perfected technic and the main researches in the field of surgery with the high frequency current, we are deeply indebted to William L. Clark, of Philadelphia. Possibly, no man's word carries greater authority in this specialty than his. "Electrodesiccation" is distinctly his offspring, both as to word and technic.

Sound fundamentals plus experience, established that the high frequency current was an important modality in surgery. Its utility is ideally demonstrated in accessible neoplasms, whether malignant or benign. Electrocoagulation and desiccation are the two principal methods used; the first, depending upon a very high amperage and relatively low voltage, and the latter, upon a very high voltage and a relatively low amperage.

Electrocoagulation is a bipolar technic with the active electrode in intimate contact with the neo-

plasm and a metered D'Arsonval current to measure the necessary amperage. Electrodesiccation is a unipolar application which does not require a metered reading, because it is dependent upon an extremely low amperage current.

In coagulation, the destructive or surgical effect is obtained by the amperage converted into destructive heat within the neighborhood of a small button-like or needle-point electrode. The intense heat coagulates the protoplasmic and cellular structures, "cooking" the tissues within the vicinity of the active pole. On the other hand, the desiccating effect of the monopolar current leaves the treated tissues in a dehydrated state, microscopically resembling a state of mummification or dry gangrene.

A. C. Geyser, in an address before the Medico Physical Society in September, 1924, quoted the following findings with reference to the value of heat in the destruction of malignant cells:

"In the third report of the Imperial Cancer Committee (1908) Haalan, at the suggestion of Ehrlich, undertook some tests with heat upon cancer tissue intended for inoculation. The result was that when such tissue was heated for thirty minutes to 111.2 F., the tissue was no longer viable when transplanted. . . . Jensen repeated an experiment, and in the annual report of the New York Cancer Laboratory, 1910, shows that all cancer cells die when heated to 116.6 F. for thirty minutes; Loeb found that sarcoma cells died when exposed to a temperature of 113 degrees F. for thirty minutes; Vedal showed that nearly all tumor growth was arrested with a continuous temperature of 104 degrees F.; Lambert, in 1912, pointed out the relationship that exists between the degree of heat and the time of action on malignant as well as on normal cells. . . ."

Clark, Asnis and Morgan, in their histopathological studies of the currents under discussion, state that "Electrodesiccation shows a drying up of the cells without any preliminary degenerative changes. The heat generated in the tissues causes an evaporation of the fluid portion of the cells; hence their shrunken mummified appearance. The cell protoplasm is condensed, rather disintegrated, thus the resulting fibrous tissue is less abundant and less dense and contractile."

It was also demonstrated by microscopic studies that "where the intensity of the heat is increased, we have, in addition to the drying ef-

fect, a coagulation of the protoplasm with a proportionate increase in trauma of the cell elements. We find, in consequence, a resulting increase in fibrous connective tissue formation" and in degree less scarification by desiccation than by coagulation. This is an important point to bear in mind when the choice of methods is under consideration, especially with reference to surgery of the face.

According to Clark, desiccation is of advantage when the lesion is localized or good cosmetic effect desired. Desiccation is subject to such fine control that even corneal ulcers may be successfully treated. Growths on the vocal cords can be destroyed without impairing phonation.

In proctology, fissures, ulcers, hemorrhoids, etc., yield promptly to the dehydrating effects of this current. In fact, desiccation and coagulation are the methods *par excellence* in all accessible, benign and malignant surgical lesions involving cutaneous surfaces, mucous orifices and osseous structures.

Some of the benign conditions suitable for treatment with the foregoing methods are papillomas, fibromas, lipomas, sebaceous cysts, simple or pigmented moles, nevi, tattoo and powder marks, angiomas, lupus, chancroids of the fulminating type, tuberculous or other ulcers, leukoplakia, erosions of the uterine cervix, Padgett's disease, chondromas, exostosis, pterygium, leukoma and surgical tensils in adults.

The small accessible malignant neoplasms of the basal or squamous cell type yield very readily to desiccation. Under local anesthesia, epithelioma of the face is brushed or sparked over with an ordinary sewing needle attached to a suitable handle and a foot switch. The growth becomes dry, hard and horny in texture, in the space of a few minutes. After the lesion has healed, it is advisable to follow with a prophylactic dose of x-ray. The cosmetic effect is excellent as no scarification follows the dehydration method.

In the more advanced accessible malignancies, such as epithelioma of the mouth, tongue or body, coagulation offers the best results where complete destruction or amputation is desired. The procedure is the same as in any other major operation. Etherization of the patient is preceded by an injection of one-fourth grain morphin and 1/100 gr. hyoscine, an hour and a half and again three-quarters of an hour prior to operation. Ether or chloroform inhalation is

given up to the time of the actual operation and then stopped. Chloroform has been employed throughout the operation without any untoward effect. Important blood vessels should be tied off before coagulation takes place within their vicinity so as to prevent secondary hemorrhage, a condition which may occur between the tenth to the twenty-second day following the operation.

What are the advantages with this modality? If the knife can accomplish the same results and expeditiously, why, the surgeon will ask, shall we trouble ourselves with a new and fairly expensive technic? We answer these questions as follows:

1. Immediate destruction of the neoplastic cells in situ.

2. The carrying of the heat, by the current, to a depth in the tissue beyond that actually treated, thus assuring the destruction of any malignant cells which have been lying beyond the area which actually appears to have been involved—a selective action as it were.

3. The practical elimination of either primary or secondary hemorrhage, as the blood vessels are thrombosed beyond the area of destruction.

4. For the same reason there is less risk of spread of metastatic elements through either the blood or lymph channels.

5. The minimum formation of contractile connective tissue.

6. Alleviation of pain; practically no surgical shock; accuracy of dosage, because the current is under absolute control of the operator; and the sterilization of the wound incidental to treatment.

VIEWS REGARDING THE VALUE OF SURGICAL DIATHERMY

The indications for endothermic surgery or electrocoagulation are numerically on the increase. This is evidenced by the recent literature of this specialty. Malignant neoplasms of the bladder are treated more effectively by electrocoagulation through a suprapubic cystostomy or transurethral method than by the knife. B. C. Corbus in discussing the paper of Bumpus, published in the *Journal A. M. A.*, October 11, 1924, said in part: "I am absolutely opposed to excision of any tumor, whether potentially benign or malignant for diagnosis or treatment. Diathermy is the greatest force that has been added to medicine or surgery in recent years. The more

malignant a growth is, the less should we attempt to remove it by excision."

Kolischer, discussing the same paper, makes the following sweeping statement: "For myself I cannot see why any surgeon, unless extremely prejudiced, could employ another method in dealing with malignant vesical tumors, after he once has witnessed electrocoagulation. Surgical diathermy shows a very low primary mortality; the whole procedure is simple and practically bloodless; even if definite cure cannot be obtained, electrocoagulation relieves the suffering and stops the hemorrhage."

In conclusion, I may be permitted to say that diathermy is not a panacea for all human ills, but a scientific remedy which is highly effective in the affections mentioned, and possibly in many others, which lack of time and space forbid mentioning.

Familiarity with the technique is essential. Given an exact diagnosis and proper establishment of therapeutic indications, diathermy will prove a reliable and effective addition to our armamentarium.

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CLINICAL DATA IN CASES OF RENAL LITHIASIS*

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The problems relative to the treatment of renal lithiasis which have most engaged our attention in recent years are those with regard to the etiology of the disease, the interpretation of the roentgenogram, the surgical indications when the stones are multiple, and postoperative recurrence.

Etiology.—The bacterial cause of renal lithiasis has been quite clearly established in recent contributions on the subject. Rosenow and Meisser succeeded in making stones form in the kidneys of dogs following inoculation with streptococci from the urine of stone-producing patients. Keyser continued the investigation from a chemical standpoint, and was convinced that bacterial exudates caused an atypical precipitation of the urinary crystals from the normal urinary colloids. Realizing that in alkaline phosphatic or incrustated cystitis, the formation of stones could be studied at close range, we carried

out a careful investigation of the etiologic factors involved in such cases. As a result, Hager and Magath concluded that the stones are evidently caused by a Gram-negative organism which is capable of breaking up urine into carbon dioxide and ammonia, and thereby favoring the precipitation of the urinary salts in the form of incrustations.

Interpretation of the roentgenogram.—The day of the surgeon who operates on the strength of the patient's symptoms, or on the findings in a roentgenogram alone, is past. Although the interpretation of roentgenograms has greatly improved in the last few years, the necessity of identifying shadows by means of cystoscopy and urography still remains, and by these measures the percentage of error in diagnosis has been greatly reduced. Accuracy in the interpretation of doubtful shadows of the urinary tract depends largely on the degree or skill in the interpretation of the urogram. The following conditions are most often the cause of confusion: 1. calcified glands; 2. gallstones; 3. renal tuberculosis; 4. unusual position of stone shadows, median, low and high, and 5. absence of shadows due to soft or early formation.

It is true that the outline of the gallstone shadow is quite characteristic and usually easily recognized. Nevertheless, there is a definite group of gallstone shadows which simulate those cast by the renal stones, just as there are shadows of renal stones which are very similar to those of gallstones. Recent developments in the technic of roentgenography of the gall bladder have been of great aid in the identification of gallstone shadows. The Graham method of visualizing gallbladders in particular often obviates the necessity of employing pyelography. It is evident, however, that in certain cases cystoscopy will be essential to their complete identification.

Calcified areas of tuberculosis, while usually distinguished from stone by peculiarities in the roentgen-ray shadow, will occasionally be a source of confusion, and require cystoscopic findings and urography for their identification. Renal atrophy resulting from multiple renal stones may be exceedingly difficult to distinguish from the shadows occurring with occluded types of renal tuberculosis.

Unusual position of a shadow of renal stone may be the source of confusion. An apparently extrarenal location of a shadow may be due to

*Read before the Inter-State Post-Graduate Assembly at America, October 29, 1924.

abnormal displacement of the kidney containing the stone. This is common with renal ptosis. An anomalous position of a shadow of a renal stone is, however, more commonly indicative of renal anomaly. Thus, an abnormally high shadow may indicate a stone in the upper of duplicated pelvis; an abnormally low shadow, a stone in the lower of duplicated pelvis, and a shadow near the median line, a stone in the pelvis of a horseshoe kidney.

Stones which are so soft that they do not cast a shadow may be easily overlooked; they can be recognized only with the aid of pyelography. Such stones are composed of soft phosphatic concretions; a mass of urates; semi-organized blood clots with calcareous deposits; putty-like deposits, or cystin. The presence of a stone may be inferred from the pyelogram by an apparent filling defect in the pelvis corresponding to the outline of the stone, and by accentuation of the periphery of the pelvic outline.

Surgical indication.—In the treatment of renal lithiasis, the indications and the method of operating for the removal of a single stone, which is too large to pass spontaneously, have been fairly well standardized. In the presence of multiple stones, however, the indications for operation are not standardized, and the procedure is largely a matter of clinical judgment. It must then be decided whether the stones should be removed, or a kidney. It may be comparatively easy to remove the kidney for stone, but it requires experience and the coöperation of several technical aids to save the kidney and successfully remove all the stones. The tendency in recent years has been toward conservative treatment. If, after the destruction of the kidney necessary for complete removal of stones, sufficient normal tissue remains, it should be saved.

A number of factors must be considered in determining the advisability of conservative operation. It must be recognized that the removal of certain types of stones may necessitate considerable destruction of renal tissue. The amount is not so much dependent on the size as on the shape and position of the stones. Branched or coraliform stones filling the pelvis and calices are usually removed with great difficulty, and with resulting destruction of a large portion of the kidney. Round stones, even if of considerable size, are much more easily removed. Small stones, even if in different portions of the kidney, can

usually be removed with the aid of renal fluoroscopy without great loss of renal function. I recently observed a case of this type in which five stones were removed from the kidney, and a month after operation the dye return was practically normal and the function equal to that before operation.

The comparative function of either kidney may be a factor in determining the type of operation, especially in cases of bilateral nephrolithiasis. Intravenous injection of indigocarmin offers the simplest method of determining this. The intensity of the color of the urine from each ureteral orifice gives a rough but fair index of the comparative renal function. The differential phenolsulphonephthalein test, while more accurate, is subject to technical error. When the function is normal, a conservative operation is indicated if there are no other complications; if there is no return of dye, nephrectomy is generally necessary. Intermediate values are inaccurate, because of reflex irritation caused by the presence of stone.

If there is no pain or other evidence of urinary disease, indications for operation may be urgent. It should be emphasized, however, that the "silent" stone can insidiously cause considerable renal damage. The patient's age may also be a factor, particularly in unilateral conditions. Nephrectomy might be advisable in an older person, whereas with similar conditions in a young person, a conservative operation might prove satisfactory. With stones in both kidneys, every effort should be made to save the kidney when possible, and only conservative operations should be attempted; if the stones are large and branched, it would be inadvisable to operate at all, unless the symptoms were so severe that relief were imperative.

Recurrence of stone.—Cabot deserves credit for directing attention to the possibility of the recurrence of renal stone following operation. Early estimates of recurrence were as high as 50 per cent., but they were based largely on stones overlooked at operation. A recent survey of more than 1,400 patients operated on at the Mayo Clinic for renal stone reveals the fact that the actual recurrences were less than 10 per cent.

A shadow may be identified as intrarenal, but there is no diagnostic method which will always enable one to determine the exact number of stones present. It is not generally recognized

that 1. although there may be but one shadow in the roentgenogram, it may be due to several overlapping or adjacent stones, and 2. although there may be multiple shadows in the roentgenogram, there may be but one or few stones in the kidney, the number of shadows in the roentgenogram frequently differing from the number of stones discovered at operation. Thus, in a review of our records of 1,026 patients operated on for renal stone, the following interesting data may be deduced:

Illustrations of inexact interpretations are: 1. in 146 cases, a single shadow was reported in the roentgenogram and multiple stones found at operation; 2. in sixty-six cases, multiple shadows were seen in the roentgenogram, and a single stone found at operation; 3. in twenty-one cases, the absence of shadows was reported in the roentgenogram, and one or more stones were found at operation, and 4. in five cases, shadows were seen in the roentgenogram of the upper ureter, but at operation stones were found in the kidney, not in the ureter.

In order to obviate the possibility of leaving stones in the kidney at operation, renal fluoroscopy at the operating table has been practised in the Mayo Clinic for the last five years. The method has been used in more than 200 cases, and has been of great assistance in the successful removal of multiple renal stones. In fact, the question might well be asked whether a conservative operation for multiple stones should be attempted without it. It has been claimed by those who have not had adequate experience with the method that it often does not reveal all the stones. This may occasionally be true of minute fragments, 1 or 2 mm. in diameter, but such stones will pass spontaneously in most cases. One of the objections to renal fluoroscopy might be that it places the surgeon in an awkward position when a small stone, not revealed by the fluoroscope, is later discovered in the end of a calix or in the parenchyma. Considerable mutilation of the kidney may be necessary before the small stone is finally found and removed. Another objection may be that the exact localization of a small stone by the fluoroscope may be extremely difficult. It is true that it is frequently hard to estimate the relative depth of the site of the stone, but needles may be inserted at right angles, under the guidance of the fluoroscope, so that their points will approximate at the site of

the stone. No method of diagnosis is infallible, but in a review of several hundred cases of renal lithiasis in which renal fluoroscopy was employed, even minute shadows were found in less than 3 per cent. of postoperative roentgenograms, and in several cases these shadows were doubtful.

The problem of recurrence of renal stone is of unusual interest, and presents several angles. From the history of most patients with renal stone, it is quite apparent that there is usually a definite period during which all stones are formed. It has been found that this period varies from one to ten years, but in most instances it lasts from two to three years. Several stones may form, possibly first in one kidney and then in the other. By the time the patient comes for operation, he has usually had symptoms of stone for several years, so that after all stones have been completely removed, the percentage of probable recurrence is comparatively small. That there is a limited period of stone formation is furthermore borne out by the fact that a second recurrence, after the second operation is rare. However, a certain small group of patients have stone-forming kidneys and pass stone after stone in spite of anything that can be done, but in most such cases the stones are small and do not require surgical removal.

It was formerly thought that the size, position and number of stones were factors in the recurrence. A survey of the cases at the Clinic, however, refutes the theory that the size of stones particularly increases the probability of recurrence. In fact, single stones of moderate size in the pelvis of the kidney, and requiring a simple nephrolithotomy, have recurred in a relatively greater percentage than any of the others. Branched stones with multiple fragments, and sand should, theoretically, be subject to recurrence. However, if all fragments are removed, which may be exceedingly difficult, their tendency to recur is not above the average. If multiple stones are completely removed, there is a lessened tendency to recurrence, as the stone-forming cycle may have been completed. Since the recent experiments of Rosenow, Keyser and Hager and Magath all indicate the bacterial etiology of stone, it is apparent that in order to reduce the possibility of recurrence, all foci of infection should be removed. A recent review of post-operative records of patients when renal

fluoroscopy was used, and in whom all foci were removed shows a recurrence in but 3 per cent.

In conclusion, it should be said that the diagnosis and treatment of renal stone belong to no single division of medicine and require the close coöperation of the internist, urologist, and roentgenologist. The coöperation is necessary even at the operating table in order to insure the complete removal of all stones with a minimum of renal destruction. Finally, in order to exclude the etiologic factors of stone formation, all possible foci of infection should be eliminated.

PRIMARY SARCOMA OF THE TONSIL*

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CHICAGO

Though most authors of articles on the subject begin by saying that sarcoma of the tonsil is very rare, the literature is quite abundant, and most text-books devote a fair amount of space to its discussion.

An examination of sixty-one case reports brings out some interesting observations. In fifty-five cases the tumor was limited to one tonsil, while in six both tonsils were involved. A preliminary tracheotomy was done in one case, and in another case Dr. J. C. DaCosta was prepared to open the trachea if necessary.

Dr. John E. Rhodes did a ligation of the external carotid to control the bleeding. W. R. Dabney resected the left external carotid, and nine days later the right in a case of adenosarcoma of the tonsillar ring with glandular involvement. Following this the tissues of the throat became blanched, and the tumors became smaller.

The treatment in this condition depends on the size of the growth and amount of involvement of the surrounding tissue. Dr. J. C. Beck advises the use of radium, x-ray in conjunction with surgery, also Coley's toxins. Dr. Henry K. Pancoast treated cases with implantation of radium into the tumor mass.

The use of fulguration or diathermy would be helpful in this type of disease.

Dr. Guthrie reports three cases as worthy of record, because "few laryngologists see more

than two or three cases in the course of a life time." This may be my excuse for reporting one.

Mrs. W. S. W., aged 63 years, was first seen in my office Aug. 17, 1923, with the following significant history:

Sometime in May she noticed a full sensation in the throat with gradually increased difficulty in swallowing. With mirror she saw that left side of throat was swollen. Aug. 5 she consulted a physician who removed a piece of left tonsil for microscopic examination. It proved to be a small round cell sarcoma. Her general health was excellent; and there was no history of malignancy in family. Examination of the throat revealed a large smooth tumor extending into the left supratonsillar fossa crowding the vulva to the right. The tumor had grown from the posterior portion of the tonsil. The lower border was at about the level of the upper portion of the larynx. The anterior pillar was free. Externally the cervical glands were not enlarged.

Having assisted in the treatment of two similar cases in which injection of lactic acid, radium, and x-ray were used with poor end results, I determined to try a free dissection in this case.

Patient entered Presbyterian Hospital Aug. 20, 1923, as case No. 169835. The usual preparation for a local tonsillectomy was instituted. A preliminary medication by hypo of atropine gr. 1/150, morphin gr. 1/4, one-half hour before operation. Surface application of cocain 10% to mucous membrane and injection of apothesine 1/2% around the growth. The dissection by sharp knife proceeded from the front, backwards. As the mass seemed to have invaded the uvula, this was sacrificed. No great difficulty was encountered and only two arteries requiring ligatures were cut. The cavity was then seared lightly with the actual cautery.

The pathological report: diagnosis—lymphosarcoma. The section showed tonsillar tissue surrounded by large masses of tissue consisting of round cells in a loose meshwork of fibrous tissue. These cells closely resembled the lymphoid tissues of the tonsil except that they were more loosely arranged and did not stain as deeply. This tissue had invaded the surrounding submucous tissue of the adjacent pharyngeal wall. The specimen had a fibrous capsular base.

Patient had a rather smooth convalescence except that after three days liquids came out through the nose on swallowing. Feeding was carried on with nasal insertion of catheter. During the next week she had three x-ray treatments to the external neck.

X-ray of chest: No evidence of metastatic foci was visible (Dr. C. B. Rose).

An examination of the throat was made Nov. 7, 1923: The left side of the soft palate was tightly contracted, but there was no evidence of tumor tissue present.

If seen early enough surgery offers the best chance for a complete cure. A careful dissection with control of the bleeding is accomplished readily with local anesthesia. Delayed cases are

*Read at meeting of Illinois State Medical Society, at Springfield, May 7, 1924.

not favorable because an external operation on the neck adds to the risk.

104 So. Michigan Ave.

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DISCUSSION

DR. ROBERT SONNENSCHNEIN, Chicago: It is well known that the x-ray and radium have a selective action on lymphoid tissue and especially in those forms of small round-cell sarcoma is there field for the best results. Before the section of the A. M. A., 1920, in New Orleans, in my paper on the use of radium in diseases of the nose and throat there was reported a case of sarcoma of the tonsil in a man about 60, in whom radium caused a complete disappearance of the growth. The man died three years later of pneumonia. But in the meantime he had no recurrence.

DR. THOMAS J. WILLIAMS, Chicago: About four years ago I had a case of sarcoma of the right tonsil, involving the lower pole of the tonsil and anterior pillar. The case refused operative procedure and went to one of the radium men in Chicago where he was treated for about two or three months when I saw him again. I think probably it was toward the fourth month when he returned. The sarcoma had been replaced by smooth connective tissue and it seemed to be entirely healed except down at the side of the tongue where there seemed to be some induration and a fissure. I suggested that he go back for more treatments which he did. The thing seemed to have disappeared for about a year and a half or two years when he developed a metastatic growth elsewhere.—I forget the exact location and the patient succumbed to this metastatic development.

DR. FRANK J. NOVAK, Chicago: It seems to me that with recurrent malignancy of the throat too much attention or too much thought is centered upon the removal of the lesion. It is a conception which, perhaps, is wrong. The problem, I believe, is one of biochemistry and the overemphasis of surgery or the x-ray is emphasis in the wrong direction. If the lesion has to be removed, I believe that the use of the high frequency current—and Dr. Beck has removed recently such tumor with the high frequency current very successfully—is a method far superior to the use of a sharp cutting edge. The problem, I believe, is being attacked from the wrong side, the removal of the local manifestation of a general condition. The studies in Rochester recently by the physiological chemistry department of the changes in the blood count show that radical changes occur in the blood in malignant conditions, and a further study of that will probably point out a radical method of treatment of malignancy.

THE SOUND PROOFED ROOM IN THE INSTITUTIONAL TREATMENT OF THE PSYCHOSES

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The sound proofed room as herein referred to may be briefly described as an apartment so insulated as, within reasonable limits, to confine within its walls any noise which may be made by its occupants. Its purpose is to relieve the physician, acting on the principle of the greatest good to the greatest number, of the necessity of administering sedatives and hypnotics to patients to their obvious detriment.

It may be safely asserted that the importance of the sound proofed room as a resource in the institutional treatment of the psychoses has not yet received either by the medical profession or the laity, anything like the recognition that its value merits.

Probably one of the principal reasons for this lack of interest lies in the fact that the matter has not been enough talked about to make a sufficiently deep and lasting impression upon those properly concerned; for whenever the advantages of the sound proofed room are explained the hearer invariably expresses cordial approval of them. However, I can recall no instance in which a physician in choosing an institution for an excited patient gave the question of sound proofed rooms the slightest consideration. After twenty years of experience with them I am firmly convinced that the sound proofed room involves a principle of cardinal importance in the institutional treatment of the psychoses, and I have the courage to hope that my expressed conviction will sooner or later receive very wide endorsement.

The sound proofing of rooms has long been in vogue for commercial purposes, as for instance, where a musical studio is adjacent to a business office; hence the methods of effecting insulation need not be here specified. Obviously the process of sound proofing need not affect the general appearance of the apartment in any respect. When properly equipped with forced ventilation the room should be large enough to accommodate a patient and nurse without the necessity of opening doors or windows to purify the air within it. Since the room must be available in hot as well as cold weather forced ventilation is indispen-

sable, though gravity may suffice under favorable outdoor temperature conditions.

As evidence that the subject has not enjoyed due publicity the question has been asked in all seriousness, if the sound proofed room were not in fact only the padded cell masquerading under a different name, whereas in the institutional treatment of the psychoses the purposes of the two devices are as widely divergent as may be. The padded cell or room need not be discussed here since its position in clinical psychiatry has for a long time been all but universally condemned by clinicians.

It happens all but invariably that cases of psychoses seeking treatment in private institutions have only done so after various forms of sedation and hypnosis have been carried to the limit. In removing the patient to an institution both his family and his physician may fail to appreciate that the necessity of securing relief from any noise or disturbance he may make is likely to be even greater than ever for here there may be patients in a critical condition whose chances of recovery would be sensibly impaired if subjected to agitating influences. The medical staff in these circumstances, unless sound proofed rooms be available, acting on the principle of the greatest good to the greatest number may feel impelled to push sedation and hypnosis still farther greatly to the detriment of the newly admitted patient.

It has long been the practice, as a matter of course, to group noisy and turbulent patients in certain insulated parts of the institution or even to provide a detached building for them. The advantages of this classification need not here be discussed. But conditions which only too often must obtain in the group of patients so set apart, unless sound proofed rooms are available, are far from being those which any one would choose as being best calculated to promote either the comfort or recovery of a given case. Though high excitement in the acute psychoses implies an element of danger from exhaustion it is from this class that the largest proportion of recoveries is drawn. Such cases not infrequently run a course of many weeks and the metabolic processes are well nigh certain to become profoundly deranged if medicinal sedation be maintained over so long a period. Indeed, it is easy to understand how such medication might determine a

fatal issue, or worse a permanent dementia, in a case otherwise curable.

The judicious use of medicinal sedatives and hypnotics as is well known, afford relief and benefit in many instances; they no doubt very properly find a wide field of usefulness in family practice. When, however, an acute psychosis develops, notwithstanding their free administration, and it becomes expedient to place the patient in a psychopathic establishment these drugs should be withdrawn, and when this is accomplished as it may be when a sound proofed room is available, the case, if curable, all but invariably advances to recovery without further resort to medicinal sedation or hypnosis. After some years of experience in institutions where medicinal sedation and hypnosis were freely and regularly used, it is my conviction, if they are withdrawn and withheld as above indicated, the patient will pass through his attack more quickly, more comfortably, and with a better prospect of recovery than he would do or have if the specified medication were persisted in.

It must be admitted however, that even in institutional practice conditions are sometimes met with, as for instance in certain cases of inveterate insomnia, where the relief afforded the patient by the occasional exhibition of a full dose of an appropriate hypnotic should not be denied him.

The writer's observations have been made in an establishment having thirty-four rooms, eight of these being sound proofed, but an experience of twenty years would seem to have demonstrated that six would have been ample. Of twelve hundred consecutive cases about one in five or twenty per cent. required the relief which only the sound proofed room could supply. In a given institution the requisite proportion of sound proofed rooms must vary within wide limits depending upon the course from which its patients are drawn.

In conclusion it is claimed that a considerable proportion of patients suffering from acute insanity can be fairly and humanely treated only in institutions where sound proofed rooms are available, and that when this obvious fact is duly appreciated, their adequate installation in both public and private institutions devoted to the treatment of the insane will be insistently demanded.

SEMILUNAR CARTILAGE DISEASE

A PLEA FOR THE EARLY RECOGNITION BY MEANS
OF THE ARTHROSCOPE AND THE EARLY TREAT-
MENT OF THIS CONDITION*PHILIP H. KREUSCHER, M. D.
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The semilunar cartilages are two crescentic lamellae which serve to deepen the surface of the head of the tibia. The outer border of each cartilage is thick and convex and attached to the inner side of the fibrous capsule of the knee-joint. The inner border is free, thin and concave. These cartilages lie upon the flat surface of the upper end of the tibia at the circumference



Fig. 1

Semilunar cartilages and their attachments.
(Spaltenholtz)

and are in no way firmly attached to the tibia nor a part of it when in their normal condition. The internal cartilage is semilunar in shape considerably longer anteroposteriorly than laterally. The external cartilage is almost circular, more firmly attached in the anterior portion of the knee-joint and is considerably smaller than the internal. (Fig. 1.) Because of its anatomic formation and attachments it is less frequently loosened, injured or deranged than the internal. Various authors give the ratio of involvement as 20 to 1. In my experience I have seen only one diseased external cartilage.

Of all pathological conditions involving the knee-joint there is perhaps none as important and as interesting as the study of the cartilage derangements. Because of the absence of a typical history which, according to our textbooks, constitutes three very simple findings, namely, locking of the joint, incapacity and a subsequent

distention of the joint with fluid, we often overlook semilunar cartilage disease. We forget that there is not always a fracture of the cartilage with locking of the joint, that there is not always a nipping and slight clicking in the joint, that the cartilage may be loosened, giving unusual mobility and consequent irritation of the surfaces, which may simulate in its symptoms ordinary synovitis of the knee-joint. In such a condition a patient has an occasional twinge throughout the joint when the leg is twisted or turned into a certain position. There may be a very slight sensitiveness over the anterior or internal aspect of the knee without any of the classic symptoms mentioned above. Trauma is the one great etiologic factor which deranges the cartilage. It is, therefore, most frequently seen among the laboring class, especially the coal miners, and also among athletes, especially those who take part in football and baseball games. The mechanism of injury is rather simple when one considers that the condyle of the femur under certain conditions presses forcibly forward and laterally upon the normal cartilage. When this force is exerted beyond a certain normal limitation, then injury results. The classification of these injuries may be as follows:

1. A simple tearing or detachment of the fibrous connective tissue at its outer circumference;
2. a loosening of the anterior tip or one-third of the cartilage;
3. a simple fracture of the cartilage, usually at an anterolateral position;
4. multiple transverse or linear fractures;
5. fragmentation of the cartilage by a nipping which takes place between the tibia and femur;
6. a partial or complete destruction by other diseases of the knee joint. (Fig. 2.)

A very unusual injury was shown in one of my recent cases, a football player who was tackled violently from in front, thus producing a hyperextension and a sudden adduction of the knee. The incapacity was immediate and the pain, which was posterolateral, continued for a number of weeks. At the operation a definite fracture was seen in posterior portion of the semilunar cartilage. It is claimed by some writers that marked injury to the semilunar cartilage cannot occur unless there is a definite division or tearing of the fibrous capsule or some of the internal lateral ligaments. This, I believe, is not in consonance with our clinical findings.

The diagnosis of fracture is not difficult when

*Read before the Section on Surgery, of the Illinois State Medical Society, Springfield, May 7, 1924.

one has the history of injury and the classic locking of the joint. In those cases, however, where there is a localized pain and sensitiveness on the inner side of the knee-joint with only an occasional click in the joint and a more or less

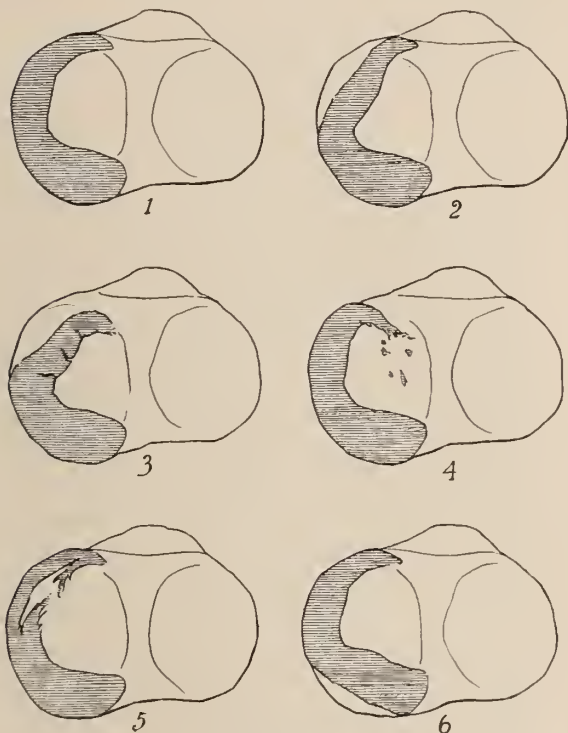


Fig. II

1. Normal right internal semilunar cartilage.
2. Rupture at the anterolateral attachment of the cartilage.
3. The loosened cartilage along the lateral and internal aspect with multiple fractures.
4. Complete detachment of the tip of the cartilage with fragmentation.
5. A linear fracture with fragmentation.
6. Partial detachment at the posterolateral position.

(Figs. 2, 3, 4, 5, 6 represent five of the writer's cases reprinted from the article on "Knee-Joint Injuries" in the *Annals of Surgery*, July, 1924.)

classic hydro-arthritis, the surgeon is called upon to differentiate from a localized subacute or chronic synovitis, a foreign body in the knee-joint, a localized tuberculous process or a hypertrophic synovitis with villous formation. The x-ray has been of very little aid as it rarely ever shows a shadow or outline of the cartilage. Kleinberg¹ in a recent article suggested the injection of oxygen into the joints before subjecting them to roentgen ray examination. He believes that in this way we are able often to recognize fractured and misplaced car-

tilages. The time has come when we will make very careful examinations of the interior of the joint by means of the arthroscope very much as the genito-urinary specialist examines the inner wall of the bladder and the rhinologist explores and inspects the antrum and nasal cavities. (Fig. 3.) Arthroscopy furnishes a definite means of diagnosing the various lesions of the knee-joint and especially those in which there are foreign bodies and injuries to or fractures of the semilunar cartilages. We are able to see definite localized areas of edema and inflammation in the synovial membrane or on the joint surface. The method consists in filling the knee-joint com-

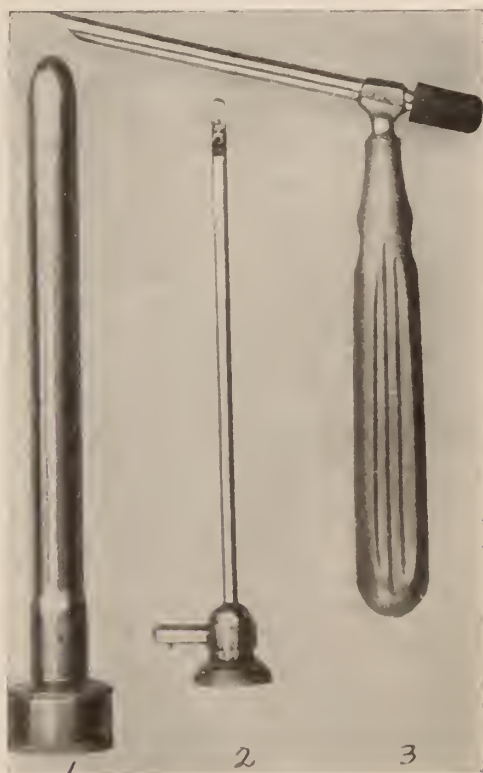


Fig. III

The author's arthroscope.

1. Carrier for scope when not in use.
2. Electric carrier (Holmes) with lens system and electric light.
3. Pointed canula into which carrier is placed as it is introduced into joint cavity, which has been distended with oxygen or nitrogen gas.

pletely with nitrogen or oxygen gas or if desired with a clear weak formalin solution, so that the synovial capsule is distended completely. In this way we are able to inspect the semilunar cartilages at their various attachments and throughout their entire extent and can by mechanical

1. Kleinberg, Samuel. *Archives of Surgery*, 8, No. 3, 1924, p. 827.

application of the arthroscope against the cartilage determine any unusual mobility. This method enables us to diagnose our more or less obscure cases earlier and therefore shorten the period of disability and lead us to prompt treatment long before the knee-joint has been wrecked beyond repair.

There is only one treatment for a semilunar cartilage derangement and that is complete excirpation of the cartilage. A removal of the anterior half or two-thirds of the cartilage leaving the posterior one-third in position must be considered bad surgery. This cartilage when once fractured or severed from its attachment does not usually reattach itself in a normal position no matter how long the immobilization of the knee-joint is kept up. Frauenthal's iodine injection under the cartilage has in my hands not given satisfactory results. Under the strictest aseptic technic and through a small incision which extends parallel to the patellar tendon and then curves sharply outward along the upper surface of the tibia, the cartilage can be removed with tissue forceps and curved scissors without in any way jeopardizing the joint. With the knee in a flexed position and the leg sharply abducted at the knee-joint one can still further facilitate the removal.

The after treatment is one of the immobilization of the joint with the application of a Buck's extension for a period of about one week, at the end of which time active and passive manipulation is begun. The question is often asked by the patient,—what will take the place of this cartilage or will the knee-joint be stable after its removal? In a great majority of cases, there is not the slightest undue lateral motion nor the slightest instability of the joint. The earlier the operation the quicker the recovery; the more timely the surgical interference the less destruction of vital tissues. Many of our operated cases assume their usual occupation in three and one-half weeks.

We conclude:

1. That semilunar cartilage disease is very much more common than is usually supposed.
2. The diagnosis can be made early from the history and by the use of the arthroscope.
3. Complete removal of a diseased cartilage is the only rational treatment.
4. A diseased cartilage, especially one that is fractured and locks and irritates the joint, is a

positive menace and frequently destroys the osseous cartilage and the synovia. Therefore, as a general rule an early diagnosis and early treatment of this condition is urged if we wish to save the joint and avoid a long-continued incapacity.

GAS PAINS; WITH AIDS TOWARD PREVENTION

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Much has been written about the treatment of post-operative gas pains, but little attention has been paid to their prevention.

Gas pains are cramp like sensations of varying severity occurring several hours after operation, lasting from four to five days, and usually relieved by the first bowel movement. They are due to the dilation of localized segments of bowel with gas, and constitute one of the most distressing of post-operative conditions. Important factors in the production of gas pains which are universally recognized, are excessive trauma of the intestine due to handling, packs, sponges, etc. and prolonged anesthesia. There are other factors which do not appear to be generally appreciated, but which are of equal importance.

It is a time honored custom and with many surgeons routine, to order for all abdominal operative cases, catharsis the day before the operation and a large enema the preceding night or following morning. At the present time there is a growing tendency to omit the former, but most surgeons still employ the enema. Let us consider for a moment just what the effect is. The patient is weakened by the frequent bowel movements due to the physic and his entire lower bowel and rectum are then evacuated by the enema. In other words we have an empty, collapsed intestinal tract which, in addition to the paresis of the bowel, caused by the trauma and the anesthetic, make an ideal condition for the development and accumulation of gas. In addition to these factors no food is given until the third day if soup and tea be excepted, and yet it is customary to try vigorously to move the bowels forty-eight hours after the operation. What is the result? The patient has at this time a bowel practically empty and distended with gas. The physic and enema whip up an already weakened intestine which reacts only partially and the patient continues to suffer.

It is generally recognized that the emergency abdominal cases which have had no catharsis or enemata run a much smoother post-operative course than those extensively prepared before operation. It was by repeated observation of this fact that we were led to adopt this deviation from the routine and the results have been, in the main, extremely gratifying. Some roentgenologists and internists have recognized and applied the principles outlined above for many years. If a clear film is desired, catharsis and enemata are forbidden, for the x-ray man recognizes that where there is an empty bowel there is gas. In the treatment of chronic constipation the fundamental principle is to keep the bowel filled with a residue so that the muscular walls will contract down on it and force it out. The mechanical presence of the residue supplies the necessary stimulus for the intestine to contract down and produce normal peristalsis. In other words the residue increases the tonus of the intestinal wall and prevents the formation of gas. Early feeding following operation is advisable because it supplies more residue. After allowing the intestines to rest for seventy-two hours, to recover from the paralyzing effect of the anesthetic, we give our cathartic and enema. In the great majority of cases, due to the abundance of residue present, the bowels move freely, and post-operative discomfort from this time on is reduced to a minimum.

The pre-operative and post-operative treatment that we have adopted for the past three years has been as follows:—The patient is admitted the evening before operation. If he is nervous or apprehensive a mild sedative is administered. *No Cathartic or Enema is Given.* He is permitted to eat a reasonable evening meal but breakfast is omitted on the following morning. One hour before operation he is given 1/6 grain of morphin and 1/200 grain of atropine sulphate as this later decreases salivation and also the total quantity of anesthetic required. Following the operation the patient is kept warm with hot water bottles, blankets, etc. Tap water or normal saline per rectum is *Omitted* except in those cases which have shown a marked operative shock. Shortly after the patient has recovered from the major effects of the anesthetic he is given hot water by mouth. Morphin is used sparingly. Usually one or two doses will suffice. Not infrequently the patient will vomit the water

given but in this way he washes his stomach. The following day if the nausea has subsided the patient may have a light diet consisting of soup, tea, cereal and custard. The diet is gradually increased until the fourth day when he is on general diet. Seventy-two hours after operation he is given three ounces of milk of magnesia and at four-thirty in the afternoon, if necessary a large soap suds enema.

In the great majority of cases so handled the incidence and severity of gas pains will be slight and following the enema a copious evacuation will be obtained.

In conclusion we believe that pre-operative catharsis and enemata in the average laparotomy are not only unnecessary but harmful, because they tend to produce gas pains. Early feeding is to be encouraged for it produces a residue for the bowel to contract down on and thus tends to prevent gas pains. The bowels should be allowed to rest for seventy-two hours before catharsis or enemata are given so as to give the bowel time to recover from the paralytic effect of the anesthetic and trauma. Tap water or saline per rectum should be omitted in all cases except where the operative shock has been great. Morphin should be used sparingly. We believe that if these suggestions are carried out in the ordinary laparotomy cases, the patient will have a much smoother convalescence, and his stay in the hospital will be materially shortened.
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OTOSCLEROSIS, ETIOLOGY AND TREATMENT

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Otosclerosis is a chronic non-suppurative disease of the bony capsule surrounding the labyrinth generally independent of the health or intercurrent disease of the labyrinth.

Etiology. Many theories have been advanced by various otologists of this and foreign countries, but it still remains a great problem to be solved by the otologists. Some of the theories are:

Haberman is among those who have held that syphilis is a direct cause of the disease.

Korner could find no proof of it being of syphilitic origin.

Denker concluded that there is no proof that syphilis is a direct cause, but may be a factor in the progress of the lesion rather than the causation.

Kerrison believes it to be due to the influence of poisons conveyed by the blood stream, from extraneous focuses of infection as tonsils, teeth, etc.

J. A. Stucky of Lexington, Kentucky, believes an important factor in the progress if not in the causation of otosclerosis to be the circulation in the blood of toxins resulting from errors in diet.

Denker has found it to be more common in women 60 per cent. to men forty per cent. Heredity seems to play an important part in the etiology as proved by Hammerschlag, Korner, Gray and others. Gray regards it as a degenerative process dependent upon inherent defects in bone cells or bone structure of the organ of hearing without evidences of inflammatory processes past or present being found. Also thinks that it is due to a failure of the local blood supply and in this way brings it into some etiological relation with depressed systemic conditions, and particularly those in which anemia is a prominent feature.

Seiberman regards it as the last stage in the process of the development of the labyrinth capsule, a stage which ordinarily doesn't take place. He believes that the process originates not in the bony capsule but in the layer of cartilage cells lying between the original membranous capsule of fetal life and the surrounding bony capsule later developed from the connective tissue of the skull.

Pathology. Otosclerosis is a lesion which generally originates in the bony capsule surrounding the labyrinth; if occurring in region of the oval window it may give rise to ossification of the annular ligament or rather to its absorption and replacement by bone, with resulting fixation of stapes, or it may involve intra-labyrinthine structures, that is, spiral membrane, and cause deafness without stapedia fixation.

The new spongy bone is characterized by Haversian Canals of abnormal width and by large medullary spaces containing numerous multinuclear cells and large thin walled blood vessels. The bone may retain its spongy character, or may in time be converted into dense bone.

Symptoms. Gradual loss of hearing sometimes being more rapid at age of puberty, following in-

tercurrent constitutional diseases, pregnancy, lactation and debilitating conditions and focal infections.

Tinnitus is severe, persistent and prolonged, and is rarely absent in any stage of the disease. Eustachian tube is patent throughout. Vertigo is rarely present.

Bezold's triad symptom complex.

- (a) Loss of hearing for lower musical tones.
- (b) Prolonged hearing by bone conduction.
- (c) Negative Rinne.

Paracnsis often present, absence of physical signs of chronic tympanic disease, inflation of tube followed by little or no real functional gain in hearing.

Intensity of sound as conveyed through cranial bones uninfluenced by compression of air in the auditory meatus (Gelle). Schwartze symptom is characterized by isolated areas of hyperemia in the mucosa covering the promontory, as seen through an atrophied, transparent drum-head.

R. A. Barlow reported fifteen cases of the relation of vestibular nerve function and myxedema. He believes that besides the other changes are disturbances of response to stimuli in the eighth nerve tracts which coincide with responses to stimuli in other nerve tracts. It may be due to edema or anemia of the nerve.

Out of five thousand cretins examined in Switzerland twenty-nine per cent. were deaf mutes and twenty-nine per cent. of remainder were hard of hearing.

Kauffman, Creekmur and Schuetz.

Fed three groups of rats.

1. Normal controls.
2. Rats on diet deficient only in fat soluble vitamins.
3. Rats on a diet deficient in both fat soluble vitamins and calcium. They were killed in three months and following changes noted:

That in rats fed on diets low in content of fat soluble A and calcium there were produced pathological conditions in the temporal bone having a fundamental resemblance to rickets. Bowing of foot plate of stapes (suggestive of the yielding of soft bone to external pressure) proliferative changes in region anterior margin of oval window, involvement of the annular ligament, that may, in process of hearing, go on to at least partial ankylosis, replacement of normal dense new vascular bone of labyrinth capsule and

coils of the cochlea by vascular spongy bone, proliferative changes in auditory nervous tissues, all warrant the same changes in the human being to a variable degree.

Robert McCarrison found that in general the effect of food deficiencies on the thyroid and parathyroids are to cause a slight reduction in size and weight in all classes of deficiencies except that of Vitamin C.

The organ is, in consequence of the food fault, rendered peculiarly susceptible to injury by bacteria or toxic agencies which may cause extensive degenerative changes in its cells and congestion.

Hemorrhage into parathyroids is apt to occur when the deficient food is excessively rich in fats and carbohydrates; this combination of faults appears to enhance the susceptibility of these organs to the action of intestinal anaerobes. Without going too far it may be safely concluded that in presence of food deficiencies the functional perfection of the thyroid parathyroid mechanism is very prone to be impaired.

These observations have important bearing on the calcium metabolism in various deficiency diseases. The results of the above experiments coupled with the results obtained in the clinical treatment has led me to believe that otosclerosis is a deficiency disease caused by errors in diet and endocrine dysfunction.

Many of these cases have their origin during pregnancy. During this period, also during lactation, the mother if she has otosclerosis always becomes worse due to the various toxemias of pregnancy and the drain on the calcium content of the blood.

Metabolism is greatly altered by the products of protein metabolism also to the effect of focal infections, especially of enteric origin, and it is commonly observed that the mother has trouble with her teeth during this period. It is found that boiling has a tendency to destroy the various vitamins necessary for growth especially for bony growth. Also due to our modern eating of candies, meats, prepared foods, which are deficient in the various vitamins, causing an acid condition of the blood, there is a back of calcium intake and an increase in the elimination of calcium, therefore the child in utero is deprived of the vitamins necessary for its growth; they are born with certain stigmata which become more manifest as the child grows

older. They are particularly prone to develop the various infections, often having what is often called the exudative diathesis. Nearly all these children have enlarged tonsils, adenoids, deafness, etc., the tonsils and adenoids often being removed without relief of symptoms. They gradually become more deaf, and especially about time of puberty, until finally the diagnosis of otosclerosis is made.

Treatment. Every case should be thoroughly studied and treated accordingly. As the calcium imbalance can be found in nearly every case, it will be necessary to feed them calcium in various forms but as this is eliminated very rapidly in various infections, also in high carbohydrate diets, it is necessary to rid the body of any focal infections, also feed the patient on fresh vegetables, fruits, milk and other foods rich in calcium.

The four adjuvants which tend to help fix the calcium are: (a) Parathyroid therapy. (b) Sunlight. (c) Air cooled ultra violet ray, also feeding of phosphorized cod liver oil.

The thyroid is the regulator of protein metabolism and also tends to rid the blood of any toxemia. It is therefore involved in most of these cases.

Suprarenal, pituitary and ovarian hormones also have a great influence on the growth and vasomotor control and are therefore indicated in certain of these cases.

Conclusions. 1. Otosclerosis is caused by deficiencies in certain vitamins in the diet, and various endocrine dysfunctions.

2. It is generally developed during intra-uterine life.

3. It is aggravated by the various infections during child and adult life often being relieved a great deal by getting rid of the focal infections.

4. It is aggravated at time of puberty, pregnancy and during lactation.

5. It is helped a great deal by proper diet and endocrine therapy.

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THE VIABILITY OF GONOCOCCI IN WATER*

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The above problem was suggested to me by visitors at a natatorium, who persisted in asking questions relative to the danger of infection from a possible venereally tainted water. The literature being indefinite I devised a series of experiments to determine, if possible, how long the organisms of gonorrhea could retain their vitality when immersed in water.

Welander¹ took virulent morning drops and exposed them on small squares of cloth. Later, at intervals, he moistened these cloths with physiological saline and injected the expressed material into healthy human urethra. He obtained one suggestive result in which an injected urethra gave rise to a clear secretion containing many epithelioid cells but no gonococci. Presumably the infection was pyogenic. He then placed fresh drops into vaccine glasses, sealed them, and kept them warm by putting them into his vest pocket. At intervals he reinjected the contents and obtained one positive reaction from gonococci which had been outside the body for three hours. McClintock and Clark² investigated the mechanism of autolysis in culture and various substances which inhibited the growth of the gonococci, such as trikresol, alcohol, and heat, but did not include the time factor. Culver³ obtained colony growth of the gonococci after they had been immersed in one-fourth per cent. silvol for a half hour, and in one-eighth per cent. argyrol for one hour. The liquid media in each instance was hydrocele fluid so that the silver salts alone were the inhibiting agents, plus any possible autogenous deleterient from the organisms themselves. Herrold was able to culture gonococci which had been placed all night in urine. Ruggles¹⁶ cites a case where a patient had gonorrhea for ten years. These reports would seem to indicate that the gonococci are not as susceptible as various text-book authors claim.

As a preliminary observation, I placed gonococci in a hanging drop of tap water. Considerable Brownian movement was seen which gradually became less. A certain amount of clumping was noted, this latter phenomenon being easily interfered with by gentle heat. Single

organisms were watched carefully. After variable periods individual organisms suddenly disappeared leaving only a finely striated appearance which also soon became lost to view. Although no perceptible difference in size of the gonococcus was observed, the sudden disappearance was most probably due to rupture of the capsule because of endosmosis.

The time factor of disappearance was variable. The shortest time was eighteen minutes, and the longest was forty-three minutes. Difference in the time element can possibly be explained (a) by the age of the particular coccus under inspection, (b) previous environment, and (c) presence or absence of endogenous autolytic substances (McClintock.²) Visibility does not parallel vitality, nor does vitality necessarily parallel pathogenicity. If, however, the gonococci after a given time of immersion could be made to grow on suitable media, there is at least the possibility of pathogenesis.

There are almost innumerable varieties of media listed in the literature as being suitable for gonococci culture. Herrold⁴, Hagner⁵, Heiman⁶, Bush⁷, Griffon⁸, Wherry and Oliver⁹, Turro¹⁰. I finally selected one used by Herrold(*). Later, I used heavy blood agar (ratio 2:5) and substituted di-basic sodium phosphate for the sodium chloride content and obtained excellent growth.

A culture of gonococci (Strain No. 34, see Torrey⁴) was obtained from which transplants were made. Test tubes each containing ten c.c. of water were arranged as follows: Series 1 contained sterilized tap water and was divided into three portions; the first was placed in the ice-box; the second in the incubator, and the last portion was allowed to remain at room temperature. Series 2 contained sterile distilled water, and Series 3 contained sterile tap water and copper sulfate (ratio 1-1,000,000). They were likewise divided into three portions and each portion treated as Series 1. The reason for using the copper sulfate in this strength was that this is as it is used at natatoriums for germicidal and fungicidal effects.

The tubes of water were withdrawn from their various places as occasion required. From the culture of gonococci a loopful was taken and immersed into a tube of water. The tube was

*From the Department of Pathology and Bacteriology, College of Medicine, University of Illinois, Chicago.

*Phosphate-ascites-agar. 15 grams agar-agar. 10 grams Witte's peptone. 480 grams lean beef. 1 gram di-basic sodium phosphate. 1 liter of distilled water (PH 7.5-7.8).

immediately put back into its proper place. Each succeeding minute a loopful of inoculated water was withdrawn and smeared on plates of warmed nutrient media and immediately incubated. After twenty-four and forty-eight hours respectively, the plates were examined and smears made of all suspected positives and treated with Gram stain.

EXPERIMENT 1

Using Strain No. 34 which had been transferred on nutrient media twenty times

Temperature	Death in Sterile Tap Water After	Death in Sterile Distilled Water After	Death in Sterile Tap Water & CuSO ₄ After
	22 Min.	25 Min.	18 Min.
37°	22 Min.	25 Min.	18 Min.
Room Temp.....	22 Min.	21 Min.	19 Min.
Ice-box Temp.....	18 Min.	13 Min.	11 Min.

EXPERIMENT 2

Using Strain No. 34 which had been previously transplanted ten times

Temperature	Death in Sterile Tap Water After	Death in Sterile Distilled Water After	Death in Sterile Tap Water & CuSO ₄ After
37°	20 Min.	18 Min.	19 Min.
Room Temp.....	16 Min.	11 Min.	20 Min.
Ice-box Temp.....	9 Min.	7 Min.	7 Min.

EXPERIMENT 3

Using Strain No. 34 after having only 2 transplants; 1 for isolation, 1 for growth

Temperature	Death in Sterile Tap Water After	Death in Sterile Distilled Water After	Death in Sterile Tap Water & CuSO ₄ After
	13 Min.	11 Min.	11 Min.
37°	13 Min.	11 Min.	11 Min.
Room Temp.....	12 Min.	9 Min.	10 Min.
Ice-box Temp.....	9 Min.	8 Min.	6 Min.

The above time factors represent the average of two separate experiments made with each sub-group and a duplicate plate for each experiment.

It is evident that the gonococcus varies widely in susceptibility. However, it seems far less susceptible than is generally thought, for it is capable under adverse conditions of maintaining life for many minutes. The organism is apparently more susceptible in cold water, and it seems to have greater resistance in salt containing water than in salt free water. The action of the copper sulfate solution is probably a double one due to the salt splitting into the SO₄ radical and the ionized copper, the former acting merely as additional salt concentration, and the latter acting as a weak germicide.

The age of the organism and whether or not it has been artificially cultivated bears a relation to its resistance. From the above tables, it is seen that the longer the organisms have grown on artificial media, the greater is their resistance to water.

The question as to whether the organisms are capable of pathogenesis at the end of the time limit specified in the charts is difficult to decide since animal inoculation is not practical (Heiman⁶). The fact that the gonococci can grow

on media after their immersion would indicate at least the possibility of pathogenesis. As to a possible infection from an inoculated swimming water, the chances seem small indeed, even though the cocci might be pathogenic after many minutes in the water.

The swimmer exposed to such infection is being bathed constantly by rapidly circulating water about him due to his own exertion, which would serve to wash away any material lodged on susceptible surfaces. The organisms which might become fixed on a mucous membrane are probably far fewer in number and more attenuated than gonococci implanted there in the usual way. A decreased protection of the mucosa or skin due to water maceration is theoretically possible.

While there are instances cited, especially in young girls, of vulvovaginitis acquired from water contamination, it is always difficult to prove such cases. Skutsch¹², Morris¹³, Epstein¹⁴, Williams¹⁵, Heiman⁶. Skutsch states an instance where 236 school girls were attacked with vulvovaginitis of gonorrhea following bathing. Generally speaking, in natatoriums where proper sanitary precautions are taken, and with frequent changing of water or the addition of some water disinfectant, like chlorine, lime, alum, copper, sulfate, etc., the danger of infection should be very small.

The question arises as to the mechanism of the action of water on the gonococci. A number of inhibiting and destructive factors may be mentioned, but there is difficulty in evaluating them. Among the more important are osmotic relations, oxygen requirements, a low or unfavorable temperature and a definite toxic action of the water on the organisms.

Summary. Gonococci may live many minutes in water depending on temperature, salt concentration, and age of organism. Danger of infection would seem to be very slight.

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LIMITATIONS OF THE CHLORINE GAS TREATMENT

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The growing idea that the chlorine gas treatment is a panacea for all nasal and throat ailments, is a fallacy. In fact, it has a rather limited field. The technic of its administration is also quite a factor in getting results.

A summary of two hundred cases treated by our method is here given.

The gas is administered in a room ten feet, six inches long, by nine feet wide and eleven feet high, making one thousand thirty-nine and a half cubic feet. This space requires one hundred and seventy-five parts of gas at all times during the treatment. It is not necessary to have the room entirely closed; we leave one window open six inches at the top, otherwise it is air tight. The gas being heavy, sinks to the floor and does not readily escape through the open window. A small electric fan placed on the floor keeps the gas moving at a higher plane.

The proper amount of gas should be liberated in the room with the entrance of the patient or patients. Then measuring Burette recharged with a corresponding amount of chlorine gas which should be permitted to gradually seep into the room during the next forty-five minutes. This amount is necessary to replace that which is inhaled by the patient and taken up by the walls and contents of the room. If the gas is permitted to enter the room in gulps or noticeable quantities it will be likely to cause irritation of the throat, followed by coughing. The quantities admitted should be so small as to be hardly perceptible to the patient.

If more than one patient is taking the treatment ten parts of gas should be added. For three patients add twenty parts, both in the original release of gas and the subsequent seepage; but do not add for more than three.

To recapitulate, one person taking a treatment in a room containing one thousand thirty-nine and a half cubic feet of space, introduce one hundred and seventy-five parts of gas during the course of an hour. Add by seepage method one hundred and seventy-five additional parts. If two persons are taking the treatment in the same room, introduce one hundred and eighty-five parts, making a total of three hundred and fifty parts of gas. For three persons or any number above three, introduce one hundred and ninety-five parts, adding one hundred and ninety-five parts by seepage during the hour.

The proper amount of chlorine in a room should be plainly noticeable by the odor and by its producing a very slight irritation in the posterior part of the pharynx. The conjunctiva of the eye may be slightly irritated. If the patient hacks or coughs, the gas is seeping in too rapidly.

Of the two hundred cases treated, thirty were relieved by the first treatment, ninety required two treatments, fifteen, three treatments, before relief of acute coryza symptoms. Sixty-five did not benefit very much by the treatment owing to nasal pathology that required operative procedure. Five cases of whooping cough responded favorably after six treatments.

This treatment should under no consideration be in the hands of the laity. It is a medical treatment requiring careful adjustment, as well as a correct diagnosis of the case. All patients should be examined by competent nose and throat men before the treatment is given.

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TONOMETRY*

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I have only one particular thought that I wish to impress in discussing the question of tonometry today, viz.; that tonometry is a question of relativity. Of course tonometry is not new. Even before the time of von Graefe, tonometers were on the market and to my definite knowledge

*Read at meeting of Illinois State Medical Society, at Springfield, May 7, 1924.

there have been at least seventeen different tonometers advocated by different men. They have all been of one or two types, the application or depression tonometer. The first type has gone into the discard. The second or depression tonometer has centered itself upon one basic principle, viz.: that advanced by Schiotz, in which the instrument itself of definite weight is put upon the eye and a further depression of the cornea is induced by a stilette upon which a weight of known quantity rests. The amount of depression of this secondary weight is then read off on a scale and translated empirically into millimeters of mercury. I say empirically, because it is purely that. The tonometric pressure of the eye, as we understand it, is not the absolute pressure of the eye, in any sense of the word. Nor does it bear any definite relationship to the manometric pressure. The intra-ocular pressure may be measured by means of the manometer. This is fairly accurate, although slight variations may occur. However, the tonometric pressure measured with the tonometer does not bear a constant relationship to the manometric pressure, because there are so many qualifying factors that are introduced. To mention a few of these, we might say that the tonometer is constructed for the theoretical eye and an eye that varies from this theoretical perfection will influence the tonometric reading; for example, the radius of curvature of the anterior surface of the cornea. Tonometers are manufactured for a corneal radius of 7.8 mm. If a variation of even less than one-half of a millimeter occurs, there is sufficient to cause a variation in the tonometric reading. The rigidity of the cornea plays a role and this rigidity is dependent not only upon the adherent tissue of the cornea itself but also upon the variations in thickness of the cornea. The rigidity of the sclera plays a great role. The relationship of the depth of the anterior chamber to the depth of the lens plays a role. The patency of the anterior chamber angle plays a role. The relationship of the intra-ocular pressure to the systemic blood pressure, and in turn the relationship varies day by day and hour by hour. These things all influence the tonometric pressure. Therefore, we can not say that the intra-ocular pressure as read on the tonometer is the pressure of the eye. It is an empirical

figure, which bears a varying relationship to the manometric pressure of varying eyes.

Let us, for instance, take a case where we measure manometric pressure. This will vary from hour to hour, starting in low in the morning and rising slightly during the course of the day and sinking again at night. The tonometric pressure as measured may be above or below. But, in any one eye that tonometric pressure will bear a constant relationship to the manometric pressure. In other words, let us say empirically that the tonometric pressure in one eye may be 10 mm. above the manometric pressure. That variation of 10 mm. will be sustained in that eye unless there is a change in the anatomical configuration. In another eye, however, the tonometric pressure will be only 5 mm. above the manometric, but that 5 mm. difference will be maintained continuously. And this is of great importance in the use of the tonometer, because it puts the tonometer on the basis of relativity. The absolute measure of intra-ocular pressure as made with the tonometer is worth nothing. It does not make a particle of difference what the tonometric pressure is as recorded in one measurement because we do not know what are the upper or lower limits of normal tonometric pressure for the one eye. We do not know whether the difference between the manometric and the tonometric pressure is one millimeter or five millimeters. Therefore, one measurement with the tonometer is of no value at all. But the measurement, day by day or hour by hour, to show the variation in pressure of that eye, is of value. It is a question of relativity. Therefore, our tonometric measure must be made in the form of a curve before it spells anything to us at all.

We say empirically that our limits of the normal are from 13 to 25 mm. of mercury, as measured with the Schiotz tonometer. That may be perfectly true if we are dealing with an eye that is anatomically perfect, as related to the Schiotz tonometer. But, in another eye that has a different radius of curvature or a slightly different thickness of cornea, those limits will not hold at all.

Thus the absolute measure of pressure with the tonometer in any one eye means nothing. It is the relation of the measurement made one day to the measurement on the following and the following or third day that is of value. And

that relationship expressed in the form of a curve is of inestimable value in cases of hypertension.

There are one or two other minor points we must lay stress upon in our tonometry, because it is almost impossible for us to make such tonometric measurements perfectly. The tonometer is so constructed that it must be applied directly over the central area of the cornea, and, furthermore, the eye must be so located that the anteroposterior axis of the eye is directly vertical and that the stilette of the tonometer is a continuation of that anteroposterior axis of the eye. That sounds simple but in practice it is extremely difficult to have the patient hold his eye in a satisfactory position so that the anteroposterior axis is vertical and so that the stilette is a continuation of that anteroposterior axis. Variation of 1 mm. or more from the central location of the cornea and the deviation of maybe only eight degrees from absolute verticality is sufficient to introduce an element of error into the tonometric measure that may vitiate the entire result. Again all pressure must be eliminated. In the average eye it is easy to pull down the lower lid against the zygoma and to elevate the upper lid against the superior rim of the orbit, so that all pressure is removed, but in some eyes it is not so easy, particularly in eyes of the protruding type. And in those eyes we are apt to have intraocular pressure registered by the tonometer higher than it actually is.

Again, the posture of the patient makes a difference. Many men are inclined to use the tonometer with the patient seated and the head thrown back resulting in pressure on the jugulars and in the normal eye there is a slight variation of intraocular pressure coincident with the blood pressure.

Furthermore, the time of day that we use our tonometer makes a difference. In order to attain satisfactory results, tonometry should be practiced at relatively the same time each day.

Of course there is no need of telling you that the corneal anesthesia must be complete and it should be of the type that does not produce any dilatation of the pupil.

Now, as to the tonometer to use, the most satisfactory today is the Schiotz and its modifications. That has stood the test of time far better than anything else and it is based upon correct prin-

ciples. There has been made another tonometer in this country that has attained great favor, unjustly, I believe, because the designer of that tonometer endeavored to introduce a different standard of tonometric pressure from that introduced by Schiotz. But, granted that the relation of the pressure, as recorded by the Schiotz, to the manometric pressure is not correct for any one eye, in this other instrument a different standard is endeavored to be introduced, which is apt to be confusing and is no more correct than that introduced by Schiotz.

Furthermore, in the other instrument there is no possibility of checking up the measure because there is but one weight of a definite value without any possible variations, whereas the Schiotz has the principle of using weights of different values in order to check the measurements, realizing, as he did, the almost impossibility of obtaining a central position for the tonometer itself.

As I say, tonometry is a question of relativity. Do not place any weight upon one measurement of an eye by the tonometer. Suppose we do take an eye and obtain a reading of 28 mm. of mercury. Theoretically that is a pathological tension. Actually it may not be pathological in the slightest degree. It is only by a comparison of that tension from day to day, taking into account the other clinical factors that we can obtain the value from tonometry that the instrument justifies.

DISCUSSION

DR. CLARK W. HAWLEY, Chicago: I want to emphasize what Dr. Suker just said in regard to the fingers. I discovered a good many years ago that the two front fingers were not as good as the front finger and that one (indicating second finger). If you take these two fingers you will find you can measure a much more delicate tension than you can with those two. That is all I want to call your attention to. I discovered that a good many years ago and have taught it in my clinic and have shown the students the same thing and they have always recognized the difference. And if you will test it on the eye you will see it yourselves. You will find you can make a different tension entirely than you can with those two fingers.

So that if you take these two fingers, just as Dr. Suker said, I think you will find you get more delicate impression than you will otherwise.

THE PROBLEM OF QUACKERY*

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The subject of present day quackery problems is one which I personally believe to be of considerable importance to us as practitioners of what we are pleased to term the regular school of medicine, and who are, for the most part, members of the recognized medical societies and organizations; I contend that it is in every way a fitting and proper subject to be taken up for discussion and to be dealt with by the regular medical profession in their councils, as a duty not only to themselves, but to a certain extent, also, for the protection of the general public as well. And while I do not care to be regarded as one with an ax to grind, or as one who is out with a sharp javelin after any particular cult or species of the genus quack, I may, for the purpose of stressing a point, herein, see fit to refer to one or more of the groups of especially flagrant violators of what we know to be principles of propriety and common honesty.

Much has been said during the past few years by certain of the members of our regular medical organizations both in the literature as well as in oral discussion concerning the menace of this increasingly grave problem of quackery, but so far as I am personally aware, there has been little accomplished thus far, by any individual or organization which would tend in any appreciable degree, to place a direct hindrance upon the exploitation of a somewhat gullible public by the charlatan, and little attempted except criticism. I do not wish to be understood here as attempting to inveigh against a constructive form of criticism, as this is well merited, but I do wish to emphasize the point that criticism and condemnation alone, will get us nowhere in the accomplishment of the end desired, viz.: a suppression of, or at least a control over some of the present conditions which make possible the vast array of fakers.

It occurs to me that one of the first things which might be properly considered here, is where the responsibility may be placed for the increasing multitude of quacks. An impartial investigation and a study to determine this cause or the causes, rather, for the evidently

flourishing condition of the quack and his ever-increasing numbers will disclose a considerable number of things which contribute to this end.

First of all I think we might consider the irregular himself and his cohorts. We must give him credit for being alive to his opportunities. Taking advantage, as he does, of the gullibility and credulity of the public he blatantly and incessantly espouses his cause in the public press and by constantly besieging the public with his revelations of miraculous and marvelous cures (sic) thus endeavoring to glorify his spurious skill, many of the deluded ones are led to hearken, and to go on to their undoing, many times unknowingly. I refer here, particularly to one class of irregulars whom I apprehend you will have little difficulty in identifying, only because of the fact that their numbers are, and for some time previously have been, more rapidly augmented than perhaps that of any other, but there are others and their name is legion, against whom I also make the same accusations. Referring especially to the "expert" spinal manipulators, it should be noted the ease with which they secure their permit to operate after a brief sojourn within the "temples of knowledge" where a zeal worthy of a better cause is instilled into the faithful in lieu of scientific knowledge and acumen, and aided and abetted as they are, by a certain percentage of the dear public who seem to have a special predilection for being humbugged, and further by a somewhat vicious state and federal legislation whereby they are permitted to practice their so-called art upon equal terms with the regular profession, allowed in many states to sign death certificates and to treat all manner of diseases, both imaginary and real, and whose victims as we well know are not recruited alone from the ranks of the so-called lowly, so far as apparent mental equipment and financial status goes, but who have for many of their regular "customers," persons of apparently nearly average mental capabilities, who are led to fall for the "bunk" of the manipulator after said manipulator has induced in them a proper psychologic state, and is thereby readily led to part with some of his superfluous shekels, and made "to like it," as the street vernacular goes. And here an interesting observation may be made concerning the collection methods of the irregular, whose system is a model so far as results are concerned, as he usually gets his fee on the

*Address before the Dane County, Wis., Medical Society, April, 1924.

spot and not infrequently in advance, and it is perhaps not amiss here for some of us to take a gentle hint, and go and in a measure seek to do likewise, at least with a certain class of individuals, as I have been constrained to do many times in selected cases, acquainting people with the fact that I was quite sure that I was at least as much entitled to an early payment of my fee as was the irregular, and have even extended my remarks much further along this line when occasion required, and with a considerable degree of success and satisfaction, I am pleased to state.

None the less reprehensible is the conduct of the man who has at some previous time had the honor of having the degree of M. D. conferred upon him by some more or less reputable school and who in many instances, has at least a fair degree of medical knowledge but who has chosen to travel the forbidden path having a disrespect for all ethical standards and perhaps not being able to make a go of it in a legitimate way, and also many times holding some grudge against the regular profession, but mainly for the reason that he can see nothing but the almighty dollar as the one means of inducing for him a state of happiness and contentment, and so prostitutes the high principles of his art for material gain.

Another causative factor which inadvertently assists the quack to flourish and prosper is the willingness of the lay press to give space in their organs to the ridiculous and manifestly erroneous claims which are so frequently made in their advertising propaganda, and it is a notable fact that there are comparatively few of the lay newspapers and periodicals which will refuse this class of advertising, the vociferous and false statement of the common quack and the patent medicine exponent occupying space which might well be filled with something of value or importance to the general public instead of providing information whereby they may deplete their already none too obese purses and not infrequently, also, prove detrimental to their physical well-being, and I consider that there is no good excuse for entering a plea of ignorance concerning the falseness and impropriety of the subject matter furnished by these unscrupulous individuals. The position which I hold in this regard is not taken so much because of the fact that we who are members of the regular medical profession are fettered by a chain of ethics which

denies us the privilege of attempting to advertise ourselves as seeking business or patronage from the public, but rather as the result of a righteous wrath having been aroused in me by the evidence of an entire falsity and greed displayed by these charlatans in the matter of attempting to deceive and even intimidate the public as they frequently do by their coarse and ludicrous methods of endeavoring to belittle and ridicule the work of the honest and capable members of the regular medical profession.

Casting about for further reasons why the quack exists, one or more of the causes may be found to exist within our own ranks. It is not difficult to observe that among a large percentage of the members of our profession there exists a somewhat marked apathy toward this subject as well as many other matters which are of much practical importance to us, and this apathy has lead to an inertia which the quack seeks to, and as a matter of fact has, taken advantage of with an accomplishment and success which is somewhat exasperating to one who has the best interests of the profession and the public at heart, when they note with despair, the unfavorable legislation which has been passed throughout the country in many states during the past few years, particularly. Not alone in this respect do many of the members of our profession assist indirectly the quack in his exploitation of the public but also in another and equally regrettable manner by his occasional failure to give to his patient the efficient and proper service which the condition requires; this many times thoughtlessly, in neglecting to give the proper amount of time and study to the case at hand and unfortunately, also by his failure to utilize every available method which might assist him in first arriving at a proper diagnosis of the condition presented. This is especially true of the chronic cases, the type of case from which the charlatan largely recruits his victims. Some of us also occasionally fail to make use of some of the indicated therapeutic measures which research and experimentation have proven to be valuable contributions to the physician's armamentarium, and while we well know that the rank and file of the profession is both honest and efficient, there are, we must admit, exceptions to the rule and this recognized fact has played at least some part in contributing to the existing state of affairs with which we have to deal as before intimated.

So much for the causative factors of the condition with reference to the problem considered, and now a consideration of the "cure." It is too much to hope, I fear, that a definite and permanent cure may be brought about, but we may, I am sure, reasonably expect a betterment or an improvement in the condition if we are willing and do apply the appropriate remedial agents, and here, one of the first things to be done in instituting the indicated treatment is to apply, first of all, the same principle which is applicable in most of the other pathologic states with which we are confronted daily, viz.: remove the cause and the condition will ultimately take care of itself, with perhaps the addition of a few well directed measures which are indicated and which I shall mention.

So far as I am able to determine there has been little accomplished by any agency or organization along this line and it is my contention that the movement for the betterment of existing conditions with reference to quackery problems should be initiated by the regular medical organizations which now exist, and hardly believe that it will be necessary, as has been suggested to have additional organizations of our members designed to functionate rather for the purpose of stressing our economic needs, and paying more attention to the business aspect of the matters pertaining to our work which are of vital interests to all of us, as well as continuing the ones which we now have which rather labor for scientific advancement and the protection of the public welfare, but there is a thought contained in the above suggestion which may in time have to be seriously considered.

I think you will agree with me that we are remiss in our duties to ourselves if we fail to give at least as much time and energy and as much thought to the matter of the dissemination of a true and legitimate form of propaganda as do the irregulars who seek to further their own interests by pseudo-propaganda.

I do not wish to unjustly criticize anyone for laxity or neglect in this regard but do not hesitate to express it as my opinion that our esteemed parent organization, the A. M. A. have not thus far performed their whole duty in this respect, and it appears to me that in addition to the work which they have done to show up and discredit the nostrum and quackery exponent

and the patent medicine vendor, which is all very well of course, but the result of the work which they have done along this line does not get the publicity which it merits, owing to the fact that the reports of same are confined to a publication in the official organ of the society, viz.: the Journal A. M. A., which is read by practically no one except the physician himself. The periodical which they have recently established and in which is inaugurated a sort of propaganda for enlightenment of the laity concerning some advances of scientific medicine is a worthy effort but is rather mild in its characterization of quackery operations and I am afraid does not get as wide a circulation as should be given a publication of this character. I refer to the magazine called "Hygeia." It is my belief that they could and should work to disseminate a much needed form of information concerning the merits of modern scientific medicine and the exposure of quackery practices through additional channels, as we know that comparatively few of the so-called laity are familiar with the very commendable work which has been, and is still being performed, by many conscientious, unselfish and capable scientific workers in the field of medicine who by their extended methods of research and investigation have made possible the present high plane upon which modern medicine rests, emphasizing, also, that this work shall continue despite the many petty annoyances and impositions with which they have to contend by the exponents of quackery and a somewhat unenlightened and unappreciative public. Why should not our leading society also make use of the daily lay press and other publications and spend at least a mite of their wealth to purchase space wherein the advancement and merits of modern medicine might in a measure be exemplified. And indeed why not also, the use of the now almost universally used instrument, the radio, to broadcast talks by well informed medical men on subjects pertaining to scientific medicine and its accomplishments, as for instance the Schick test, the value also of typhoid inoculation, of tuberculin, diphtheria antitoxin, the Pasteur treatment, the use of insulin and a host of other remedial and prophylactic agencies which have contributed so greatly to the accomplishments of modern scientific medicine and the resultant

effect upon the mortality and morbidity of disease.

We know, of course, that a few of the state societies have recently taken it upon themselves to initiate a campaign intended to counteract in some measure the ravages of quackery and such an effort is a very praiseworthy one and we bespeak for it a considerable degree of success, and it behooves us as members of the societies to assist in every possible manner the furtherance of this effort, and also seek to enlist the aid of those of the profession who are not yet members of our societies, that a united front may be presented in the fight as this is essential to the success of the campaign, and we must realize further, that such a united effort does not at all excuse an individual effort but rather makes this more obligatory, and should remember also, that in this as in all other campaigns of any character, that we will get only as much out of it as we put into it, so there must be no shirking of our obvious duties in this regard. An effort by the officers and members of our present state and county societies to increase the membership in same is likewise of importance, this for the common good. Finally, we should henceforth strive to establish a closer bond of professional and social relationship among ourselves, realizing that this factor has been too much neglected in the past, and when the proper spirit of cooperation and friendliness is made more manifest among us, then will it come to pass that a higher grade of professional work and other accomplishments which we seek may be expected, and will inevitably result, and then also for all of us will be ushered in the dawn of a better day.

FURTHER OBSERVATIONS ON THE USE OF CONVALESCENT SERUM IN THE PROPHYLAXIS OF MEASLES*

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In a recent paper¹ the results of our work with convalescent serum as a protective against measles at the Durand Hospital were reported. It concerned 57 susceptible children who were exposed to measles. Nine of these were not given serum; all developed typical measles. Forty-

eight were given 5 to 10 cc. of convalescent measles serum; 44 were protected and 4 developed measles. Of the 4 developing measles, 3 were given the serum 8 to 12 days after exposure; I was given the serum the day of exposure and developed a typical form of measles 15 days later. There was only 1 failure in 45 children given serum within 4 to 5 days after exposure. In this paper the literature on the use of serum in measles was fairly thoroughly reviewed, so that only more recent articles will be mentioned here.

Zingher² in New York City has had some interesting results. Of 102 children receiving convalescent serum, 92 were protected. Of the 10 developing measles, seven were given the injections on the eighth day of exposure and developed a modified form of measles with incubation periods of from 16 to 22 days.

Davis³ gave convalescent serum to 52 susceptible exposed persons with 50 protections. Of the 2 who developed measles, 1 had a typical case, and the other a mild atypical attack which would scarcely have been recognized unless one were watching for the appearance of the disease.

Adler⁴ reports the use of whole blood from convalescents or adults who have had measles for protecting young children. Of 18 children in his private practice given from 20 to 30 cc. of whole blood from 4 to 8 days after exposure, 5 were completely protected, 12 had mild atypical measles and I had a typical attack. This is the first report seen on the use of the blood or serum in private practice. Adler says the method is so simple that any general practitioner may safely use it.

H. Cambessedes and P. Joannon⁵ report the successful use of convalescent serum in preventing measles in several of the hospitals and crèches of Paris. During the winter of 1922-23 severe outbreaks of measles occurred in Paris: in one crèche there were 36 cases and 17 deaths among 38 infants. By the prompt use of convalescent serum it was found that measles could be quickly stamped out in these institutions.

In our additional series, 100 susceptible exposed children were given convalescent measles serum. Of these 81 were entirely protected; 9 developed a mild atypical form of the disease, and 10 had typical measles.

*Read before the Inter-State Post Graduate Assembly of America, Milwaukee, Wis., Oct. 27-31, 1924.

¹From the Durand Hospital of the John McCormick Institute for Infectious Diseases, Chicago

TABLE 1

Cases given serum	Age	Days between exposure and administration of serum	Result		
			No measles	Atypical measles	Typical measles
25	4 mos.—6 yrs.	1	23	1	1
10	4½ mos.—4¾ yrs.	2	10	0	0
12	18 mos.—4½ yrs.	3	10	0	2
12	6 mos.—10 yrs.	4	12	0	0
13	8 mos.—10 yrs.	5	11	1	1
10	15 mos.—9 yrs.	6	5	5	0
7	21 mos.—14 yrs.	7	6	1	0
5	2 mos.—4 yrs.	8	4	0	1
1	3 yrs.	12	0	0	1
4	18 mos.—3½ yrs.	14	0	0	4
1	13 mos.	16	0	0	1
100	2 mos.—14 yrs.	1-16 days	51	9	10

In Table 1 are shown the results of the use of serum. One child was not given serum and developed typical measles in 14 days, while others exposed at the same time in the same institution and given serum one day after exposure were protected. Of the 10 children who developed typical measles following the use of serum, 7 were given the injections 5 days or more after exposure. The 3 who had an unmodified form of measles were reported as exposed 5 days previously.

Many of these cases are from the private practice of physicians in Chicago who often dated the exposure from the appearance of the rash in another child in the family. Measles is contagious during the catarrhal or pre-eruptive stage so that in some of these cases exposure is undoubtedly 3 to 4 days longer than reported.

Supposing that the reported exposures are correct, there is a failure to protect in only 3 of 72 injected with measles serum within the 5-day period. These children were given the same lot of serum as many of the others and in the same manner and amount. Why convalescent serum fails to protect against measles in some cases is unknown. Most investigators report from 2 to 4 per cent. of failures even when the injections are given within the first 5 days of exposure.

The protection afforded after 5 days of exposure to measles by convalescent serum is more uncertain. Of 35 children given serum 5 to 8 days after exposure, 7 developed apparently unmodified measles, 7 developed a very mild form, while 26 were entirely protected. Of 6 children exposed to measles for 12 to 16 days before serum was given, there was apparently no protection or modification of the disease. There is thus considerable protection afforded even up to 8 days after exposure, but the best results are

secured when the serum is given within 4 to 5 days after exposure.

The 9 atypical cases are an interesting group. These forms vary in intensity from a light attack in which the child may have some slight catarrhal symptoms, a transient rash of 1-2 days and a moderate elevation of temperature to 101-102° for a day or two to very light transient cases which would pass entirely unrecognized if one were not constantly on the watch for symptoms. If one could standardize the dose and time of administration accurately, it would perhaps be better in many cases to give the child just the amount of serum which would permit it to develop a mild abortive attack of measles with its actively immunizing effect rather than to protect it passively by a larger dose of serum and leave it susceptible to measles after a few weeks. In time such a dose of serum may be standardized.

The cases reported last year were largely in hospitals and in institutions where the length of exposure was usually limited by the isolation of the case of measles. This year the cases were largely in private practice where the time and intensity of exposure were usually greater than those in institutions. Yet the degree of protection is about the same in the two series.

One interesting group of cases this year occurred in a large summer camp for boys. A few days after the opening of the camp, a boy came down with measles. As an attest of the activity of this lad and the virulence of the infection, 12 additional cases developed 12 to 16 days later. While it was difficult to find out with certainty how many more boys were susceptible, 12 who had no history of previous measles were given measles convalescent serum 5-6 days after the second crop of measles appeared in an effort to prevent an extensive third crop from developing. No more cases developed in the camp. Supposing that the 12 secondary cases were as effective in spreading the virus as the original case, there should have been a general epidemic among the remaining susceptibles. By prompt isolation and the use of protective serum, the disease, which was beginning to assume epidemic proportions, was checked in the second generation.

The method of securing serum and preserving it has been described previously.¹ We have used a 5 cc. dose in all cases without any attempt to

graduate the amount to the length of exposure and the age of the patient.

An experience with one family would indicate that a dose graduated as to age might be advisable. One child in a family of 6 children came down with measles. On the sixth day of exposure, the remaining 5 children ranging from 2 to 9 years were given 5 cc. of serum. Twelve days later, the oldest, 9 years, developed a mild atypical form of measles with a moderate rash for 2 days, a temperature of 102 for one day but no noticeable catarrhal symptoms. She was with difficulty put to bed for the day. One day later a boy of 7 developed a milder rash, but would not remain in bed. The next day 2 more, aged 5 and 4 developed a very transient rash for one day with no elevation of temperature or other symptoms. The youngest, 2 years, showed no symptoms at all. These children were all given 5 cc. of serum, but the protection afforded increased as the age decreased, i. e., from a mild attack of measles in the oldest through very transient atypical forms for the younger ones to complete protection for the youngest child of two years.

Degwitz⁶ has used a 2.5 cc. dose of serum as a unit, increasing this amount with the age of the patient and length of exposure. Zingher has also varied the size of the dose with these two factors.

We have had no experience with the use of whole blood or serum obtained from persons who have had measles at rather remote times. Reports by several observers seem to indicate that such blood from adults who had measles in childhood possesses distinct protective power, but must be given in relatively large doses (30 to 40 cc. of whole blood). The blood may be injected intramuscularly without or with the addition of sodium citrate to prevent clotting. When convalescents of sufficient age are not available, the blood from parents and older children who have had measles may be used to secure protection or at least to cause a modification in the severity of the attacks if they occur.

Our experience has been that most people are willing to give blood without financial remuneration. When the humanitarian side has been pointed out, we have had very few refusals to donate blood either for measles or scarlet fever.

We have been getting blood from convalescent scarlet fever patients for several years.

From the reports of various investigators, it is fairly well established that serum or whole blood from persons recovering from measles contains sufficient antibodies to protect against measles when given early. It is a safe procedure when donors are selected carefully. The main defect of the plan is the lack of available donors. This has been met by Adler⁴ in his private practice by using the blood of relatives. In New York City the Health Department has made serum available for the general practitioner. With closer cooperation between the family physician and a hospital group, there could soon be collected enough serum for considerable prophylactic work against measles in children under 5 years of age.

SUMMARY

1. In a previous report 57 children exposed to measles were observed; 9 were not given serum and all developed typical measles; 48 were given serum and 44 were entirely protected. Of the 4 developing measles, 3 were given the serum injection too late—8 to 12 days after exposure—and the course of the disease was apparently unaltered. One child given serum on the day of exposure developed typical measles 15 days later. There was one failure to protect in 45 cases given serum within 4-5 days of exposure.

2. In the present series, 100 susceptible children were given a 5 cc. dose of convalescent measles serum. Eighty-one were entirely protected, 9 developed atypical measles and 10 developed the disease in a typical form. Of the 10 developing unmodified measles, only 3 were given the serum within 5 days of exposure.

3. From various reports the protective power of whole blood from persons who have had measles sometime previously seems fairly well established. Where convalescent serum is unavailable, this method may be used by the general practitioner to good advantage.

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THE ENIGMA OF APPENDICITIS*

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GALESBURG, ILL.

An analysis of our surgical experience with over 600 cases of appendicitis has led to the conclusive title and presentation of this paper. Having a personal avidity for figures and statistics no such analysis has been attempted, but rather a general resume of the presenting signs and symptoms of acute appendicitis, as we have seen them, is offered.

The pathological typing of acute appendicitis into acute catarrhal and acute suppurative has not, in our experience, been of easy demonstration. It is our practice, and by our continued teaching, the practice of the physicians referring surgical cases to us, to insist on surgery as soon as the diagnosis of appendicitis is made. In spite of this practice, rarely have we seen an appendiceal specimen that we could consider as the seat of catarrhal inflammation only. It is our belief that the catarrhal stage so rapidly advances that within a few hours definite suppurative changes are present. We believe that very frequently the suppurative stage is present almost from the onset.

Most text-books, under the diagnosis of acute appendicitis, set forth the signs and symptoms in chronological order. Much effort has been expended in papers attempting to clarify the diagnostic problems of the condition and give an outline of the presenting symptoms and bedside findings, typical and characteristic of acute appendiceal inflammation. We do not believe that there is such an appendiceal syndrome. The great majority of our cases could not be classified in terms of such a syndrome. An early diagnosis in acute appendicitis is often a most difficult diagnosis to make, frequently being made by exclusion only. An early diagnosis is necessary if we are to further lower our surgical mortality and diminish the morbidity subsequent to abscess formation, generalized peritonitis and post-operative adhesions.

We choose to present our observation in terms of the so-called signs and symptoms of the acute case, namely—pain, nausea and vomiting, leucocytosis, fever and diarrhea or constipation.

Pain, in our experience, has been the most constant symptom. Early, as is well known, it is

usually located in one of three places, namely—the epigastrium, about the umbilicus, or in the right lower quadrant of the abdomen. It may be generalized throughout the abdomen. It may be localized anywhere in the torso, from the clavicles to Poupart's ligaments, anterior or posterior. Occasionally, with typical gall bladder localization, operation proved the presence of a pus appendix only. In a few cases there has been no localization, pain or tenderness. Recently, while operating for a retroversion an appendix was removed for prophylaxis. The pathologist reported acute suppuration within the lumen. This patient had no symptoms preoperative and to her knowledge had never experienced an attack of appendicitis.

Tenderness can be elicited in practically all cases, if sought for. The best method for obtaining this is by deep palpation—recto-abdominal or vagino-abdominal, preferably in a warm bath. The bath will overcome most of the voluntary rigidity when present. The localization of the tenderness is in the lower right quadrant of the abdomen.

Nausea occurs frequently, vomiting less frequently, in our experience. We believe this to be a late symptom because of our repeated removal of suppurative appendices from patients who had not presented this combination. Also, these symptoms are so frequently associated with many other conditions within and without the abdomen and with or without pain as, in our experience, to be of little value in the history of a patient who presents a possible acute appendix. We have, however, seen cases in which it was the only presenting symptom.

Leucocytosis, with polynucleosis, in an early case, is of negative value when the total count is over 20,000. The majority of our cases have not had over 15,000 and often even with gangrene, rupture and beginning peritonitis, the count has been below 12,000. Many acute early cases show a normal total and differential count. On the other hand, a routine blood on patients having no acute condition, will often show a persistent count of from 12,000 to 15,000. In suspected cases of appendicitis, in our experience, an early blood count fails to confirm or deny a diagnosis.

In an early case, temperature measurements have also been of negative value. The referring physician, who has waited for an elevation of

*Read before the Section on Surgery of the Illinois State Medical Society, Springfield, May 7, 1924.

temperature to confirm his suspicions of appendicitis, almost invariably brings in a case complicated by a beginning, or well developed involvement of the peritoneum. An elevated temperature bears us to a diagnosis of a late case and we usually find surgical drainage necessary. Frequently we have seen a normal or subnormal temperature in a ruptured case, with an overwhelming infection, but we may be sure that a marked elevation of temperature has previously been present.

The condition of a patient's intestinal motility has never been of value to us in summing up a diagnosis, except for the occasional history of a loose movement shortly following the onset of the pain. Only rarely is intestinal activity normal in any form of illness. The laity well appreciate this and an acutely ill patient is soon dosed with a laxative, thus masking this part of the history.

Much has been written regarding the erroneous diagnosis of acute gastritis, gastralgia, bilious attack, etc., when in our opinion, frequently the true condition is acute appendicitis. Most frequently this may clear up until a subsequent attack, but occasionally, yet all too frequently, the end result is a ruptured appendix. The latter condition has been frequently seen with the pre-onset history of the supposed ingestion of some indigestible food. Any indefinite gastrointestinal disturbance, in our opinion, must be considered appendiceal in origin, until proven otherwise. If early, it cannot be so proven, appendectomy is indicated. It is better surgical judgment to remove a number of appendices unnecessarily than to wait too long for a diagnosis on one.

In summing up, we believe that:

1. An early diagnosis in acute appendicitis is often most difficult and truly presents an enigma.
2. Suppurative pathology is present very early and often from near the onset.
3. Most of the signs and symptoms usually taught as characteristic are either misleading or present only after the early stage is passed.
4. The most constant and characteristic sign present early is deep tenderness demonstrated bimanually.
5. In every case of acute abdominal pain or apparent acute indigestion, the appendix should be either ruled out or cut out.

COMPLICATIONS OF MASTOIDITIS OPERATION*

CHARLES MOORE ROBERTSON, M.D.

CHICAGO

The usual procedure in considering complications attending or following mastoid operations is to relate the complications arising within the cranial cavity or from jugular thrombosis.

I am going to depart from that course this morning and talk to you of the ordinary complications you meet in the treatment following mastoid surgery and consider details which I know have tortured you in the progress of such cases. The first complication I would speak of is pain. At the time of operation the surgeon often places his dressings too tight. After the patient is returned to his bed and the wound has begun to bleed, as it does after operation, the patient experiences quite a lot of pain. This is usually caused by the dressings having been placed too tightly. Vertigo is often present at the same time. These complications are unpleasant and can be relieved by taking care of the pressure made by the dressings. Lack of granulations with no effort on the part of the wound to heal requires a full examination of the patient to make out systemic diseases, which if found, require special care. We may speak of a displaced facial nerve within its canal, or, as the author saw in two cases in which the nerve lay exposed in the cells of the mastoid. One case just recently operated upon had a facial canal which was situated in the pneumatic cells and could easily have been severed in the canal, had it not been recognized. This condition is not so rare as we have been led to believe.

The author has seen three such cases. In some cases we have a displaced jugular bulb as is seen by a bluish swelling on the floor of the middle ear. This should be treated with respect and not chiseled into for fear of sinus infection or puncture. Anomalous position of the lateral sinus especially in sclerotic mastoids should be mentioned as a complication, for this often prohibits operators from removing all diseased cells which is so necessary if we would obtain a cure. Caries about the internal carotid is a complication which must not be forgotten.

The author had a spontaneous rupture of the internal carotid while the eustachian tube was

*Read before the Section on Eye, Ear, Nose and Throat of the Illinois State Medical Society, May 6, 1924.

being curetted. This occurrence is not so grave an accident as might be supposed, as a slight pressure gauge pack will control hemorrhage at this point there being no pulsation in the bony canal of the internal carotid artery.

One condition I would call your attention to is the necrosis of the partition wall between the eustachian tube and the canal of the tensor-tympani muscle. This, if not removed, will keep a discharge going for months and years.

Overhanging of the external convolution of the temporosphenoidal lobe is not uncommon and cells in the atrium are liable to be missed, thus delaying or preventing healing. Formation of bridges of tissue in the new cavity must be controlled. Exuberant granulations must be kept from piling up in and around the oval window. Discharge is kept up by prolonged packing of the wound.

Of the more serious complications of suppurative otitis media, labyrinthitis may be mentioned as occurring much more frequently than has been supposed. Inflammations of this character may be termed as serious or purulent. Serous labyrinthitis is usually localized and walls itself off by an exudation barrier so that operation on this type of labyrinthitis is unnecessary. The purulent type, however, requires draining when present or the patient will proceed to the more grave condition of purulent meningitis and death. If the labyrinth requires draining, the operator should have an intimate knowledge of the minute anatomy of the middle ear as otherwise the life of the patient, or the function of the facial nerve would be lost.

Purulent labyrinthitis is a condition in which you have pus in the labyrinth which if continued will end in purulent meningitis and death. The question comes whether it should be opened and drained or should we await the outcome of the suppurative process.

Of all the complications of course extra-dural abscess about the sinus is more common than any other place. Next to this is extra-dural pus under the cerebrum and next to that under the cerebellum. Here the sinus should be exposed well below the point of the lower elbow to find if the jugular bulb is involved or not. These cases, when drained, go on just the same as the ordinary mastoid. Cerebral extradural abscess usually occurs above the attic or above the

antrum. This is of quite common occurrence. They are usually evacuated early, but should they not evacuate, the case usually goes on to meningitis. In the case of cerebellar abscess, we usually find it above the sinus, though it is necessary to look below or behind the sinus to see if there is any accumulation there. Nearly all of these cases of the latter type have pain away back of the ear.

Sinus thrombosis is the next frequent complication. It may be sterile or purulent. Sterile either from pressure outside of the sinus, or from a perisinus abscess producing direct pressure on the sinus thereby producing a clot. The sinus thrombosis may develop into a phlebitis of the wall of the vessel in which there is little or no clot. Then we may have the complicating clot of the internal jugular of the neck or in the lateral sinus of the upper portion or we may have a sinus thrombosis of the cavernous sinus with all the findings we get in cases of that sort.

We may have as a complication a brain abscess, either a cerebellar or a cerebral. The cerebral is the more common. It is usually situated along the proximity of the necrosis. In some cases it is found removed quite a distance from the original focus. It is usually singular, but may be multiple. In cerebellar abscess it is usually well behind the sinus, sometimes very small and sometimes quite extensive.

Lastly, we have meningitis which may come from a sinus thrombosis and abscess or from a perisinus abscess, an extradural abscess or from purulent inflammation in a dural abscess, but more often from purulent meningitis.

DISCUSSION

DR. A. H. ANDREWS, Chicago: There is one phase of the subject I want to discuss, this is the facial nerve. I want to warn those who would become mastoid operators not to experiment on the patients. A man who wishes to perfect himself in this operation should do his experimenting on the cadaver. In operating on the cadaver we can go as close to the danger areas as we think safe and then check up our operation by going on and see how close we were. By operating on the cadaver we can acquire ability which will enable us to operate safely and thoroughly on patients.

The Doctor mentioned the facial canal and the cells which surround it. My impression is that the facial nerve is injured in its downward progress back of the auditory canal oftener than in any other place. This is because of the variation in the tissue which surrounds the nerve. Sometimes it is in hard bone. Sometimes the cancellous portion of the mastoid en-

tirely surrounds the delicate canal in which the facial nerve lies. In doing cadaver work I have frequently found instances in which had I undertaken to remove all the mastoid cells I would have injured the nerve, if I had not kept in mind this variation. By so doing and using a delicate instrument we are usually able to remove all necessary diseased tissue without injury to the nerve. In many cases the deeper cells back of the nerve extend a third to a half inch deeper than the level of the nerve itself. It is not always easy to avoid injury.

DR. JOSEPH C. BECK, Chicago: The chairman called attention to the number of facial nerve paralyses that continue even after the paralyzed nerve is hitched to a functioning nerve. The point is that you cannot hitch on the facial nerve and expect results if the muscles are past recovery. The rule is that as long as you get a reaction to degeneration, that is the reaction test of galvanism with 5 ma. electricity, a vermicular contraction along the whole side of the face will be caused, but do not mistake that for a reaction of the masseter muscles. They are supplied, not by the seventh, but by the fifth. I have had 17 cases in my experience of facial nerve paralysis repaired by plastic operation. The earliest recovery was after three months. I did an implantation anastomosis in this case. The usual operation is to use a branch of the hypoglossal, that is the descendens hypoglossus, which is a very good size. This nerve comes off from the hypoglossal proper opposite the middle tendinous portion of the omohyoid and runs directly downwards supplying part of the posterior belly of this muscle. It is cut as near the insertion of the muscle as possible and is implanted into the distal portion of the spinal accessory. The proximal portion of the spinal accessory is united with the previously prepared peripheral portion of the facial nerve. These anastomosed portions of nerves are surrounded with particles of muscle tissue snipped off from the sternocleidomastoid to prevent the interposition of scar tissue. The suture material as well as the needles are of necessity the very finest that can be obtained. When this operation as described is successful, the disagreeable associated action of the face with the movements of the shoulder is done away with. Dr. Grant of Denver, who first described this method, is entitled to a great deal of credit.

In order to avoid an associated action as when we used the spinal accessory, we now take the descendens hypoglossus and attach it into the other side of the hypoglossal so as to have continuous function. The result of the 17 cases were 14 good acting nerves. The other cases were all late. I should not have operated on them at all, but you know if a case comes in to you, you operate. Dr. Barney of Indiana, who discussed my paper before the New York Academy of Medicine, said the bone should be left alone around the facial canal, even though it was necrotic. I was opposed to that. Many years ago he operated on a case and produced a paralysis and he claimed that in order to remove all the disease he had cut the facial nerve.

DR. CHARLES M. ROBERTSON, Chicago (closing the discussion): I thank my confreres for their remarks. If the facial nerve is injured it is a very good idea to hitch it on to the hypoglossal or the spinal accessory. The hypoglossal is probably the nerve of choice for this operation. In nearly all the text-books I have seen, the hypoglossal is hitched on in the wrong way. If you have a stump of the facial nerve as it comes out of the styloid foramen, you can get enough to bring this down and hitch it onto the hypoglossal, you will thus have the nerve current coming down into the facial. In all your nerve anastomoses you have to have a switch just like you have a railroad switch. So the nerve impulse travels toward the periphery of the nerve.

In cases of nerve palsy from nerve trauma associated with concussion, the nerve will begin to recuperate after say from three weeks to six months. The facial nerve is the most easily injured of any nerve in the body, except the eighth or auditory nerve. The facial nerve has not much tendency to come back, though it is possible to cut off the ends of some nerves and place them in a cylinder of decalcified bone. They will grow again and function. The facial nerve takes a long time to regenerate. If any motion is seen in three or four months you can be sure that the facial nerve is regaining its function. Dr. Beck has done quite a little facial nerve work and he will probably talk to you about it.

The person who is going to be an operator should first operate on the cadaver. No one, and I do not care who he is, can learn the mastoid in the dry specimen. He has got to see it in the dead house just as Dr. Andrews has said. The operation is performed and after the operation is completed, you see how far you were from danger. Better than any cadaver work is to teach students to do the work. You learn more than they do. One thing that is essential is to learn the anatomy of this little bone.

VENEREAL DISEASE PROBLEM*

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Acute venereal disease is a problem that has confronted the medical fraternity for centuries without any apparent satisfaction or definite solution. Cabot says, "sexual education is in its infancy." Many plans have been tried by both church and state without any definite apparent result. It is the opinion of the writer that acute gonorrheal urethritis results in more complications, causes more unhappiness than any other disease known to medical science. Morrow estimates that 60 per cent. and Forcheimer that 51 per cent. of the adult male population of the United States have gonorrhea. He also adds that

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20 per cent. of these young men become infected before they are twenty-one years of age and over 60 per cent. before they pass their thirty-eighth year. Then Blanchkl calculates that among the clerks and business men in Berlin between the ages of 18 and 21, 45 per cent. have had syphilis and 120 per cent. have had gonorrhea. In Breslau 77 per cent. have had syphilis and 200 per cent. have had gonorrhea. Stokes, the Epidemiologist of the Mayo Clinic at Rochester, Minn., in his book, "The Third Great Plague," on page 26 states: "It is not infrequently estimated that as high as 70 per cent. of adult males have gonorrhea at least once in a lifetime. On the whole it is conservative to estimate that one man in ten has syphilis." Col. Veeder of the United States Army, Washington, D. C., in his book entitled, "Syphilis and Public Health," on page 46 states: "Fully one-eighth of all human disease and suffering comes from this source; that 60 per cent. of young men become infected with venereal diseases: 20 per cent. before the twenty-second year; 50 per cent. before the twenty-fifth year and 80 per cent. before the thirtieth year." Rosenow, Professor of Preventive Medicine and Hygiene at Harvard, and formerly Director of the Hygienic Laboratories of the United States Public Health Service, in his book, "Preventive Medicine and Hygiene," on page 62, quotes Morrow as stating that "Seventy-five per cent. of adult males acquire gonorrhea at some time, and from five to ten per cent. acquire syphilis." Norris of the University of Pennsylvania in his book, "Gonorrhea in Women," on page 126 quotes as follows: "Ninety per cent. of all pelvic infections are of gonorrheal origin; 30 to 50 per cent. of all childless marriages are directly caused by gonorrhea; 80 per cent. of the men in large cities have had gonorrhea once or several times, 45 per cent. infecting their wives; 80 per cent. of all operations upon women for diseases of the uterus are caused by gonorrhea; that venereal diseases contribute a sum total of morbidity of nearly double that of all infectious diseases, both acute and chronic; that there are one million five hundred thousand infected annually with gonorrhea in this country.

Funk, Director, Bureau of Social Diseases, Pennsylvania State Department of Health, in his book, "Vice and Health," on page 47 states: "Ninety per cent. of all syphilitic infections in

men are contracted from prostitutes, either professionals or amateurs; 50 per cent. of all syphilitic women are infected innocently; 70 per cent. of the New York hospital for venereal disease patients were respectable married women infected by their husbands; 85 per cent. of married women who have syphilis have contracted it from their husbands; 51 to 60 per cent. of the male population in the United States have or have had gonorrhea."

The twenty-eighth annual report of the State Board of Health of Wisconsin—the last report issued—on page 146 states: "We must look upon syphilis as a misfortune and not as a badge of immorality. The children, wives and those with accidental infection are many. This group makes up approximately 50 per cent. of syphilitics."

Rankin, former President of the American Public Health Association, and for years Secretary of the South Carolina State Board of Health, in the *Journal A. M. A.* of January 22, 1922, on page 281 says: "Syphilis causes one-tenth of all deaths; produces twenty per cent. of the inmates of our institutions for the insane (whose total population approximates the population of our universities). Gonorrhea is chief cause of sterility and produces an enormous drag on efficiency and industry." When one considers that 80 to 90 per cent. of all acute infections of the anterior urethra become posterior and that 50 per cent. of the posterior affects the adnexa and in turn other complications arise it seems that we are dealing with a most virulent infection.

There must be some good reason for such an appalling condition and with this in mind we tried to find some data for further thought and investigation. A great many suggestions have been made to solve this problem. The question of education has suggested itself and the time devoted to it which I will attempt to show. In all A Class medical colleges of the United States 4,000 hours or thereabouts are required for graduation with a degree of M.D.; in some medical colleges a little more and in some a little less. We have written a number of the class A universities regarding the course in genito-urinary diseases. While mostly all of them devote a certain amount of time to urology in other departments, the following is a list of the colleges with the amount of time devoted to diseases of the genito-urinary tract as a specialty.

	Hours
Vanderbilt University Medical College.....	224
Meharry Medical College	192
Ohio State University Medical College.....	108
Medical College of Virginia	104
University of Colorado Medical College.....	98
Northwestern University Medical School.....	96
University of Oregon Medical School.....	96
Baylor University Medical School.....	92
Long Island College Hospital.....	114
Loyola University Medical School.....	84
Jefferson Medical College	80
University of Georgia.....	101
Emory University Medical School.....	75
University of Illinois.....	72
Detroit College of Medicine.....	72
University of Tennessee Medical School.....	66
Bellevue University Medical School.....	64
University of Michigan Medical School.....	62
University of Pittsburg Medical School.....	56
University of Buffalo Medical School.....	53 1/2
Tulane University of Louisiana.....	52
Syracuse University Medical School.....	52
Boston University School of Medicine.....	50
Rush Medical College	48
Georgetown University Medical School.....	45
Harvard Medical School	40
University of Minnesota Medical School.....	36
St. Louis University Medical School.....	36
Marquette University Medical School.....	36
University of Cincinnati Medical School.....	32
Western Reserve Medical College	32
Jorns Hopkins Medical College	24

The number of hours given in the above list includes both didactic and dispensary work. It will be recognized there is a considerable difference of time given over to this subject in the different colleges.

It must not be forgotten that the time devoted to the subject of venereal diseases in the medical college is the only training the medical student receives until he or she enters the practice of medicine. It will also be remembered that the treatment of acute venereal disease is not carried out in the general hospitals, so the student must depend solely on the instruction that he receives in this special work in our various medical schools. In a great metropolis like Chicago we have only two hospitals willing to receive patients with acute venereal disease, which I believe is very limited when one considers a population of almost 3,000,000 people. It might be well to mention that one of these hospitals is the great Cook County Hospital and urology in that hospital is under the direction of the Dermatological Department. The number of beds for the entire department is somewhere in the neighborhood of 40.

A prominent urologist once said that he did venereal disease work in order that he might be able to do genito-urinary surgery and when the roll is called of urologists one finds that less than 10 per cent. of his work is devoted to acute gonorrheal cases. That means that the other 90 per cent. is treated by the general man and at the corner drug store.

Pathology

How many physicians have ever studied the pathology in connection with anterior urethritis

due to the Neisser organism? If my recollection serves me right there was very little if any work in this department. Our knowledge of the pathology dates back to the work of Finger, Grohm, Schlaenhauser, who inoculated criminals condemned to death and then found by immediate coccus. The following are some of their findings: coccus." The following are some of their findings:

Thirty-eight hours after inoculation the gonococcus had only just begun to affect an entrance between the epithelial cells and the lacunae of Morgagni were crowded with the gonococcus. Diapedesis had begun and the intracellular gonococci were found among a few leucocytes on the surface of the epithelium. At the end of three days the inflammatory process was well under way. The surface of the mucous membrane was covered with pus and the epithelium infiltrated by bacteria from one side and by leucocytes from the other. The investigation showed four striking characteristics:

First, the pavement epithelium of the fossa navicularis although swollen with leucocytes resisted the invasion of the gonococcus almost absolutely.

Second, the cylindrical epithelium of the penile urethra was chiefly invaded.

Third, this invasion was most marked about the crypts and the glands were packed with pus but no gonococci were present.

Fourth, the subepithelial connective tissue though showing every evidence of inflammation did not show gonococci except in the neighborhood of the crypts and glands.

It has been estimated that in acute gonorrheal urethritis the organism invades the urethra at the rate of about 1 cm. in 24 hours and it is, therefore, very easy to calculate the number of days before the junction of the anterior and posterior urethra is reached. Inasmuch as all acute gonorrheal infections are anterior, one can readily see how the posterior urethra becomes infected. This is usually accomplished under one of two conditions, either by a lowered vitality on the part of the patient or by treatment, forced injections or instrumentation.

Symptomatology. Inasmuch as the symptomatology is well-known, such as burning on urination, frequency of urination, creamy discharge, red meatus and painful priapism—the mere mention will suffice.

Treatment. It is not the purpose of this paper to standardize a treatment for acute gonorrhea.

but it is the intention of the writer to impress on every physician who undertakes to treat this class of cases, to give some form of local treatment according to pathology whether it be hyperacute, acute, subacute or chronic. It has been brought out very well by various health officers and dispensary workers that many patients seek advice because their family physician refused to do anything more than prescribe internal medicine and give advice, all of which tends to prolong the disease and produce further complications. It is for this reason that I have outlined a general course to follow.

A mild silver salt such as half per cent. of protargol or 10 to 20 per cent of argyrol. The prophylaxis question was well brought out during the great war and by virtue of the education given to the soldiers prophylaxis today is in very common usage among the lay people.

It seems to me that we are able to give more adequate treatment and obtain better results when we are dealing with a patient who realizes his condition. The only way I know to have the patient do this is by education on the part of the physician. And this is to be done on the patient's first visit. He should be made to understand that the disease requires immediate attention and that he must cooperate with the physician. The earlier one has the confidence of the patient the sooner will be his cure. While it is important to impress on the patient the seriousness of his illness it must be done in such a way as not to frighten him. The question of diet, catharsis and as much rest as possible should be fully explained. The internal medical treatment should be carried out from the beginning with the local treatment. Before one can consider the local treatment it is well to have a well equipped office with the proper armaturium. It is not enough to write a prescription and give advice and observe the condition of the meatus without giving some local treatment. We believe that the best local treatment is the early injection of from 10 to 20 per cent. of argyrol or one-half of one per cent. protargol or any of the mild silver salt solutions. It is also quite necessary that the patient be instructed as to how to inject himself. Also applications of heat to the anterior urethra. The time element should be explained. If possible, the patient should call and receive a treatment every day for the first seven or eight days and then two or three times a week afterwards. Much time could be saved for both the

patient and physician. The treatment just mentioned refers to the anterior infections only. There has been some question as to the treatment of acute posterior urethritis. Inasmuch as the gonococci have been enfeebled or weakened by the time the posterior urethra is reached they yield to treatment much more readily than they do in the anterior urethra. Giving hot sitz baths, ten to fifteen minutes at a time, and some internal medication, hexamethylene, 40 or 50 grains a day, or some of the sandalwood oils according to the indications and deep injections by means of the Guyon catheter usually brings forth good results. The other method is what is known as the Janet treatment or more commonly known in this country as the Valentine treatment, which consists of filling the bladder by means of an irrigator from the meatus or the introduction of a catheter to the cut off muscle and then forcing the solution into the bladder or introducing a catheter into the bladder and filling the bladder with a hot potassium permanganate solution and then having the patient empty the bladder.

When should a patient be discharged?

Before a patient is discharged as being cured after suffering an acute neisserian infection it is not enough to make a smear and a microscopic examination as many times the gonococci organism is overlooked.

In all cases even though the urine may be clear the judicious use of a sound should be done and the entire anterior urethra massaged on the sound while it is in place. By so doing any infected glands of Littre or lacune of Morgagni will be broken down and the pus drained into the urethra. This procedure should be carried out at least twice or three times before a culture is made. It is our practice before discharging a patient and I believe it is only fair to the patient to do a culture and a compliment fixation test. I think it is the only true way to tell whether there is any existing infection. Even though the urine may be absolutely clear and free from shreds it would be doing the patient a gross wrong to discharge him as cured while a growth could be found on culture if done. The technique of this is very simple. Cleanse the glans penis well with plain soap and water, follow up with weak alcohol solution and have the patient urinate into a large sterile test tube. Second,—massage the prostate gland and vesicles and collect the contents into a second sterile tube and have

the same cultured in separate dishes. While this requires some time it will save both the patient and the physician a great deal of anxiety.

The daily use of a microscope in all acute and chronic infections is one of the most essential factors of determining the end result.

CONCLUSION

First, inasmuch as one-eighth of all human diseases are due to some form of complication of gonorrhea and syphilis more time should be given to this subject in our medical schools.

Second, all general hospitals should understand the great necessity of wards for handling acute venereal diseases.

Third, in large cities there should be a hospital devoted to the medical and surgical treatment of genito-urinary diseases.

Fourth, a urological department dealing with medical research and the surgical aspects of genito-urinary disease should be installed in all medical colleges.

Fifth, local treatment should be instituted in every acute gonorrheal case. A well equipped office should be emphasized and education of the patient to his own condition should be followed out in each case.

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ECTOPIA LENTIS (REPORT OF THREE CASES)

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As congenital dislocation of the lens is a rather rare condition the following cases may be of interest.

Case 1. Mrs. E. N., aged 47 years, married, housewife, born in Russia, came to our clinic at the Michael Reese Dispensary, August 16, 1923, complaining of poor vision and headaches. This condition existed since birth. Her family history was negative with the exception that her mother suffered from similar trouble. Her personal history was also negative. She never sustained any injury to the eyes. Examination of the eyes disclosed conjunctiva and cornea

normal. Anterior chamber deeper in lower half than upper. Upper part of the pupil was of a gray color while lower was black. Examination with ophthalmoscope showed both pupils to be crossed by semi-circular dark lines symmetrically placed. Tension was normal. V. O. D. = 6/200; V. O. S. = 6/65 — 2.

Diagnosis. Congenital dislocation of the lenses. Probably congenital in type, in view of the fact that the condition existed since birth, that it was symmetrical and that her mother was similarly affected.

Case 2. Mrs. B. B., aged 36 years, housewife, Russian, came to Michael Reese Dispensary, May 15, 1922, complaining of near-sightedness and occasional headaches. Family history was negative, except that mother was near-sighted all her life. No history of injury to eyes could be obtained and she stated that her condition had existed as long as she could remember. Examination disclosed dislocation of both lenses, floaters in the vitreous and tremulous iris. She was given glasses but her sight did not improve. Seven months ago an operation was performed on her left eye. This improved her distant vision, but there was no change in the near vision. She returned to our Clinic, Aug. 2, 1923, complaining of same symptoms. Lens in left eye had been removed but fundus showed choroiditis juxta-papillaris. Right eye showed no change. V. O. D. = 5/200 with + 3.50 = 10/200. V. O. S. = 2/100 with — 2.50 + 5.00 × 15 — 20/50 + 1.

Case 3. E. K., aged 7 years, came to the clinic of Dr. O. Wipper (with whom I was formerly associated at the Chicago Polyclinic) Nov. 7, 1923, complaining of having had poor vision since birth. Glasses did not improve his vision to any great extent. Examination disclosed dislocation of both lenses and beginning cataract in each eye. In the right eye the suspensory ligament was seen lying over the edge of the lens as a dark segmented crescent, snake-like in appearance. High myopia was present. V. O. D. = 20/100; V. O. S. = 20/100.

Discussion. Congenital dislocation of the lens is a very rare condition. Knapp saw only ten cases in 50,000 patients. Zani in 1909 stated that not more than 136 to 140 had been observed.

Etiology. Heredity plays a great part. Martin recorded its occurrence in five successive generations comprising ten individuals. Adams re-

ports a case of a family of nine children, seven of whom had dislocated lenses. Lewis found 16 cases in six generations of one family. As to pedigree,—out of marriages of 22 affected and non affected parents seventeen were affected, proving a ratio of almost three to one. From this we may conclude that the normal is recessive to the abnormal; that individuals exhibiting an abnormal condition of the lens possess a certain factor in the presence of which the development of the suspensory ligament is inhibited.

Other causative factors are rupture of the suspensory ligaments in utero, developmental defects, and retraction of the vitreous. Zani believes the theory by Badal and LaGrange to be the best. According to this theory all such eyes are myopic and the lens is too small in size for space it should occupy. As a result the over-stretched zonula yields and the lens is displaced into the direction of least resistance.

Symptoms. (a) Subjective: Poor vision is the main symptom. Occasionally monocular diplopia or polyopia is present.

(b) Objective symptoms: These are best demonstrated under dilatation of the pupils. With a small pupil the iris will hide the lens. The anterior chamber is deeper on the aphakic side than in the non-aphakic side. Iridodonesis is present on movements of the head. Nystagmus is occasionally present. On examining the eye with the ophthalmoscope, we see one or two dark heavy crescentic lines crossing the pupil. The lens appears gray while the aphakic part appears black. The border may be notched, indicating coloboma. Frequently the lens is small in size and round in shape, resembling fetal lens. The condition is generally bilateral and symmetrical. The displacement is usually upward and inward,—it may, however, be down and in, straight outwards and down and out, the frequency being in the order named. Directly downward almost never occurs. Backwards it may occur in microphthalmos as a result of a defect in the development of the vitreous.

Associate Pathology. This may include ectopia of the pupil, errors of refraction, particularly astigmatism, fundus changes, coloboma of iris, choroid or ciliary body, aniridia and nystagmus. The patients are generally intelligent and well

developed, however, in the case of Adams referred to above, the two unaffected children were more intelligent than the others.

Prognosis. Doubtful. Usually there is no change of condition. The capsule of the lens is seldom ruptured and the latter remains transparent. Spontaneous dislocation, cataract and glaucoma may occur.

Treatment. There is very little that can be done for these cases. If glasses improve vision they should be prescribed. If the lens becomes opaque, or if the diplopia is annoying, removal of lens should be attempted. This, however, is very difficult. In early life discission is to be preferred.

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TRYPARSAMIDE NOW AVAILABLE

The Rockefeller Institute for Medical Research takes pleasure in informing you that arrangements have been made for the release of Tryparsamide, effective January 1, 1925.

The drug is to be manufactured by the Power-Weightman-Rosengarten Co. of Philadelphia, and will be distributed through the regular trade channels. Orders for future delivery may be placed with drug firms or forwarded to the manufacturers, in which case delivery may be made, at the discretion of the manufacturers, through their nearest representative. The scale of prices, which has been arranged in conference with representatives of the Rockefeller Institute, should be the same in either case. As the drug is being released for the benefit of the public and the Rockefeller Institute does not share in any way in the profits, the prices are being made, with the cordial cooperation of the manufacturers, as low as at present possible.

HERMAPHRODITISMUS IN THE HUMAN BEING

Schauerte, in the *Zeitschrift fuer Konstitution*, describes a sixteen-year-old twin girl who had a fair-sized penis that showed erectile power at the age of ten, a scrotum on one side but also a vulva into which opened the urinary passage. She had many boyish traits during childhood. The breasts enlarged at fourteen years and menstruation began at fifteen years and six months and remained regular. Laparotomy revealed a normal uterus, one enlarged ovary containing a blood cyst and a normal uterine tube. Section of the scrotal contents proved them to contain a true testis with spermatogenesis going on as far as spermatids. Between the tubules was an abundance of interstitial cells. By the side of each testis was a functioning ovary with ovarian follicles, ova and corpora lutea. Section of the amputated penis showed well-developed corpora cavernosa. After removal of the ovotestis, menstruation continued and the sex inclination of the patient reversed to the feminine side.

Society Proceedings

ADAMS COUNTY

The meeting was called to order at the Chamber of Commerce March 9, 1925, at 8:15 p. m., by President Dr. C. D. Center. Thirty-five members and three guests were present.

Under the head of committee reports, Dr. Pearce reported the progress of the Convention Committee and Dr. Wells asked that all those who had made a financial pledge for the convention to kindly pay these pledges as soon as possible. The president then called on Dr. H. M. Camp, Secretary of the Illinois State Medical Society, to address the meeting at this time. Dr. Camp reported the splendid progress that the State Society was making with its plans for the Convention to be held in Quincy in May. Under the head of correspondence, the Secretary announced, first, the receipt of a post card from Dr. W. E. Shastid of Pittsfield, now visiting in California, extending greetings to the Society; second, a letter from Dr. R. H. Jacobs, Jacksonville, announced his resignation from the Society; third, a letter from Mr. C. L. Wells, asking the appointment of a member of the society to serve on the Board of Directors of the Social Service League of Adams County; fourth, letter from Dr. Joseph B. DeLee, Chicago, expressing his interest in the case report of Dr. J. W. E. Bitter, published in the *January Bulletin*; fifth, a notice in the *ILLINOIS MEDICAL JOURNAL* asking the appointment of a representative from this Society to serve with the General Medical Committee of the National Baby Congress and Health Exhibition; sixth, several letters concerning a controversy going on in the Illinois Tuberculosis Association; seven, letter from Dr. Frank Cohen expressing his gratitude for the resolution in his behalf at the February meeting; eighth, a bulletin from the Legislative Committee of the Illinois State Medical Society; ninth, a letter from Dr. Baird of Galesburg, Illinois, with a petition to change the date of the 1925 meeting of the Illinois State Medical Society. This petition and letter had already been turned over to the Convention Committee by the Secretary. Dr. Nickerson made a motion that the Chair appoint a representative to serve on the Board of Directors of the Social Service League of Adams County. Seconded and carried. Dr. J. W. E. Bitter was appointed. Dr. Knox made a motion that the Chair appoint a representative to serve on the committee of the National Baby Congress and Health Exhibition. Seconded and carried. Dr. T. B. Knox was appointed. Dr. Williams presented his resignation from membership on the Gorgas Memorial Committee, stating that he did not care to serve because of the financial obligations that were expected from members of the committee. The Chair announced that because of the fact that members were expected to contribute financially to the Memorial, he would not appoint anyone, but if anyone wished to volunteer to accept the position he would be glad to appoint them. Dr. Bitter called the attention of the Society to the fact that a representative from the State Department of Public Health had been in Quincy recently in the interest

of keeping the Venereal Clinic here. He made a motion that the Society go on record as opposing the establishment of free clinics of any kind in Quincy, and that a copy of same be sent to Dr. Rawlings, Director of the Illinois Department of Public Health. Seconded and carried. Dr. Irwin asked if the Society was still a member of the Chamber of Commerce, because the President of the Chamber had said that we were not. The Secretary stated that a voucher had been drawn for the current year's dues last November and believed it had been paid, and that he felt quite sure we were a member. Dr. Beirne suggested that the Secretary communicate with the Treasurer in regard to the matter in order to be sure that our dues had been paid. The President directed that this be done. The Board of Censors announced that they had not yet approved of the two applications that were up for consideration and Dr. Wells made a motion that they adjourn for a few minutes to make their report. Seconded and carried.

Dr. Camp then addressed the Society on the subject of "Shock—Its Diagnosis and Management." This paper was discussed by Drs. Becker, Williams, Baker, Miller, Nickerson, Shulian, Wolfe, Wells, Steiner, and finally Dr. Camp. A Symposium on Pneumonia was then given, individual papers being given by Drs. Litchfield, Cohen, Ericson, Irwin and Werner, covering the various aspects of the disease. These papers were discussed by Drs. Nickerson, Knox, Pollock, A. H. Bitter, Ericson, Becker, Montgomery, Swanberg and Williams. Dr. F. W. Bowles then read an interesting case report on a case of Pseudocystitis and Dr. Brenner reported three interesting cases that had occurred recently in his practice. These reports were discussed by Drs. Nickerson and Williams.

The Board of Censors brought in their report concerning the application of Dr. Hecox as being favorable, but asked for more time on the application of Dr. Snider. Dr. A. H. Bitter moved that the report be received. Seconded and carried. The President then appointed Drs. Pearce and Knox as tellers and Dr. Hecox was declared elected to membership to the Society. Dr. Nickerson made a motion that the Society extend a rising vote of thanks to Dr. Camp for coming to Quincy to address the Society. Seconded and carried.

Adjournment occurred about 11:00 p. m.

HAROLD SWANBERG, M. D.,
Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Meeting of March 4, 1925

1. Pharyngitis.....J. Holinger
Discussion—Geo. W. Boot
 2. Empyema.....Ralph Boerne Bettman
Discussion—Isaac Abt
 3. Traumatic Rupture of Thoracic Aorta with Review
of 55 Abdominal Injuries
Discussion—Wm. M. Harsha, Daniel A. Orth
- Meeting under the Auspices of the Aux Plaines Branch,*

March 11, 1925

Studies on Etiology and Specific Treatment of Arthritis, Ulcer of the Stomach and Certain Epidemic Diseases of the Nervous System. (Moving picture demonstration.)

E. C. Rosenow,
Mayo Foundation,
Rochester, Minn.

Discussion—Frederick Tice, Ellis K. Kerr, Thomas E. Roberts, Walter W. Hamburger, A. C. Ivy,
Eugene F. Traut.

Joint Meeting Chicago Medical and Chicago Urological Societies, March 18, 1925

1. Male Sterility.....V. D. Lespinasse
2. Some Phases of Seminal Duct Infection.....
.....W. T. Belfield
3. Surgical Interference in Medical Kidney ConditionsGustav Kolischer

General Discussion

March 25, 1925

Regular Meeting

DIAGNOSTIC CLINIC

1. Bladder Neck Obstructions.
Cases of Bladder Tumor..Daniel N. Eisendrath
2. Radiographic Studies of the Infant Chest.....
.....W. W. Wasson, Denver, Colo.
3. The Medical Treatment of Ulcer of the Stomach and Duodenum.....Milton M. Portis

April 1, 1925

Regular Meeting

Surgical Treatment of Major Chest Conditions
Don Deal and Hermon Cole
Springfield, Illinois

(a) The Subject of Chest Surgery from two viewpoints.

(1) Our new technique for operative conditions within the chest such as foreign bodies, tumors, and lobectomies.

(2) Operation upon the chest wall for conditions within the chest.—Don Deal.

(b) Therapeutic pneumothorax and mechanical devices for controlling lung excursions. Lantern slides showing the amount of completion obtained by the various methods.—Hermon Cole.

Discussion—Ethan Allen Gray, Hugh McKenna,
Clarence Wheaton, P. S. Winner.

CRAWFORD COUNTY

The March meeting of the Crawford County Medical Society was held Thursday, March 12, in the library of the Robinson Hospital. The meeting was called to order at 2:00 p. m. by the president, Dr. S. A. Smith.

Two excellent papers were read at this meeting. One by Dr. H. N. Rafferty was a very instructive and interesting paper on "The Prostate in Health and Disease." The doctor emphasized the importance of preoperative care of the patient and the difference between cases for operation and the non-operatives. Every member complimented Dr. Rafferty on the excellent presentation of his subject.

Dr. A. G. Brooks read a timely paper on "The

Return of Tonsils after Operation." After the paper was received for general discussion it was brought out that tonsils do recur frequently, which consists mostly of lymphatic and connective tissue.

At this time Dr. C. E. Price, the county health officer, reported that he had been notified that Dr. J. A. Ikemire's laboratory at Palestine has been made a branch laboratory of the state department of health. Thirteen members present.

GREENE COUNTY

The Greene County Medical Society met in regular session in Carrollton on Friday, March 13, 1925. The meeting was called to order by the president, Dr. Wm. H. Garrison, at the Illini Club Rooms at 11:30 A. M.

The election of Delegates to the State convention of the Illinois State Medical Society to be held in Quincy early in May, the 75th anniversary, resulted in the election of Dr. W. T. Knox as Delegate, and Dr. F. N. McLaren as Alternate.

The Secretary read several communications from the State officials of the State Dept. of Registration and Education, which to us would seem an out and out whitewash, has been promised faithfully, to look after violators of the Medical Practice Act, but nothing doing, and seems now, that they don't intend to do anything.

Letter from Dr. Isaac D. Rawlings on Health Promotion Week, May 2-7.

At the hour of 12:30 adjournment was taken for dinner to the Hotel Lindsey where an excellent dinner was served, after dinner, the meeting was again called to order at the Illini Club Rooms.

An invitation to attend, elect a representative to the National Baby Congress and Health Exposition to be held in Chicago May 2-9 was read, Dr. H. W. Smith was elected Committeeman and the Secretary was instructed to notify Dr. R. H. Ferguson, Secretary of the Chicago Medical Society of his selection.

Motion carried, unanimously, that we as a Society go on record in opposition to House Bill No. 28, an act declaring the right of the People to organize into trade unions and associations and to regulate the procedure in Courts of Equity in relation thereto.

In the absence of Dr. F. H. Russell, Censor, the President appointed Dr. E. E. Jonett, Censor-protem. The Censors met and reported the next meeting, June 12, 1925, at the Carrollton Fair Grounds with a picnic for members and family.

At the last meeting the Society decided to take up the study of the Endocrine Glands. The Pituitary Gland was the one selected and the appointment of Dr. H. W. Smith, Essayist. This subject was presented in a paper which showed thought and a wonderful amount of study, was presented in a delightful way, being a comparatively new study, was the more interesting his paper took up and discussed diseases resulting from a disordered or abnormal function of the gland.

Discussion followed by all present. The matter of our meetings bring permanently, located more centrally

in the County, especially during the winter months and bad road season were discussed, and looked upon with favor, but no action taken.

The rain of today prevented many from coming.

The Society Adopted a Resolution Against the Child Labor Amendment from a real American Viewpoint:

WHEREAS, Congress has passed an Amendment to the Constitution which would give that body power to limit, regulate and prohibit the labor of persons under eighteen years of age, and

WHEREAS, Such an amendment would Vest in Congress the right to standardize employment and education of children and give the Federal Government the power to prohibit or limit to any degree that it might see fit the care, culture, education and employment of children, and in effect, to nationalize all children under eighteen years of age, and,

WHEREAS, The use of the catchy expression, "Child Labor" amendment, and the humanitarian features connected therewith, have served to create sentiment and excite sympathy of certain social welfare groups, and other well disposed people, who have thus unwittingly permitted themselves to be used by the enemies of the Government to aid and abet the passage of this bad measure, and,

WHEREAS, The ratification of this amendment for action is now before the State legislatures, and,

WHEREAS, This amendment will interfere with parental control, from the viewpoint of industry, thrift, and character and will substitute Federal bureaucratic control by remote, expensive and irresponsible authorities, and,

WHEREAS, Such regulation is in violation of the principles set forth in the Constitution and that such legislation should be left to the several States, and,

WHEREAS, The proposal to take away from the States and confer on the National Government those rights and powers specifically reserved to the States in the Constitution would be revolutionary and would change the principles on which the Government is founded, and,

WHEREAS, All persons of socialistic, communistic tendencies are strongly in favor of the ratification of said amendment by the States.

Be It Resolved, Therefore, That we, the Greene County Medical Society in regular session, March 13, 1925, do hereby declare that we are unalterably opposed to the ratification of the 20th amendment to the Constitution.

A rising vote of thanks was extended to Drs. Jonett and Hensler for their entertainment.

On motion adjourned at 4 P. M.

W. T. KNOX, M. D.
Secretary.

Marriages

FRANK AMOS CHAPMAN to Miss Katherine Howe, both of Chicago, Dec. 20, 1924.

J. RITTER SUTTER, of Edwardsville, to Miss Elizabeth K. Drexilius, March 7, 1925.

Personals

Dr. Irwin W. Bach, formerly of Tuscola, has been appointed physician to the Cunningham Home, Urbana, to succeed Dr. William M. Honn, resigned.

Dr. Raymond W. McNealy, Chicago, has been appointed chief surgeon and medical director of the Illinois Manufacturers' Mutual Casualty Association.

Dr. Myron W. Snell, Jacksonville, has been elected vice president and medical director of the American Bankers-Clover Leaf merger insurance companies.

The Chicago Roentgen Society had a symposium on the diagnosis and treatment of duodenal and pyloric ulcers, March 13, in which Drs. Dean Lewis, Albert E. Halstead, Milton M. Portis and R. D. Carman took part.

Dr. John Leeming addressed the Chicago Society of Industrial Medicine and Surgery, March 2, on "Some Difficulties in the Operation of Workmen's Compensation Act," and Dr. Carl Beck spoke on "Plastic Surgery of the Crippled Hand."

At the regular meeting of the Chicago Pathological Society, March 9, among others, Dr. Lemuel E. Day spoke on "Foot and Mouth Disease," and Dr. Max Pinner and Henry C. Sweany on "A Pathogenic *B. Subtilis* from a Patient Having Chronic Tuberculosis."

At a meeting of the Chicago Surgical Society, March 6, at Mercy Hospital, Dr. George Halperin spoke on "Post-operative Massive Collapse of the Lung," Dr. Philip H. Kreuscher on "The Substitution of the Erector Spinae for the Paralyzed Gluteal Muscles—A Stabilizing Operation," and Dr. Paul B. Magnuson on "Anatomy and Physiology of the Lower Back as Applied to Causes of Backache."

The Institute of Medicine of Chicago gave its first Ludvig Hektoen Lecture of the Billings Foundation at the City Club, March 27. Drs. George F. and Gladys R. H. Dick lectured on scarlet fever.

Dr. Porter P. Vinson, Rochester, Minn., addressed the Rock Island Medical Society, March 10, on "The Diseases of the Esophagus," and Dr. Jacob R. Buchbinder, Chicago, on "Surgical Consideration of the Dyspepsias."

At the regular meeting of the Chicago Tuber-

culosis Society, March 12, at the Brevoort Hotel, among others, Dr. Knud Secher, Copenhagen, who has done the clinical work for Dr. Mollgaard, spoke on clinical experiences with "Sanocrysin" in tuberculosis.

Dr. Max Thorek of Chicago has been elected corresponding member of the Surgical Society of Paris, France, following a lecture delivered by invitation before that society.

News Notes

—Cairo recently conducted a vaccination campaign against smallpox, in which out of 1,900 school children only fourteen remained unvaccinated when the campaign closed.

—Nettie Rupert was sentenced to one year in jail, and V. C. Wright and L. Glenn Barker to a year at hard labor on the penal farm, each also being fined \$500, it is reported, in the county court at Charleston, February 24, for violating the medical practice act. The three defendants were chiropractors from Mattoon.

—Under a decision handed down by the appellate court of the fourth district at Mount Vernon, February 9, "herb doctors" are not allowed to practice in Illinois. The decision was given, it is reported, in affirming the conviction of one George F. Mash in the Perry County Circuit Court following the death of one of his patients. Mash was fined \$200.

—The state director of health reports that an epidemic of measles is spreading over the state at the rate of about 150 new cases per day, having increased from an average of 300 cases weekly two months ago. In epidemic years measles causes more than 500 deaths in Illinois, a mortality greater than that from either scarlet fever, typhoid fever or smallpox.

—Three cases of leprosy have been reported along the North Shore, the latest victim being a former sergeant in the army who served in the Philippine Islands. He is at the Veterans' Hospital, Great Lakes Naval Training Station, and will be sent to the leprosy colony in Louisiana. The others were Zezus Barrentas and his brother Augustine of North Chicago.

—The city of Springfield has awarded a contract for a twelve million gallon water treatment plant, which will involve such features as mechanical clarifiers and carbonization chambers to

remove the iron from the water and make it possible to clarify Sangamon River water, if that source should be used at any time. The project will also include a storage basin for purified water of the same capacity as the treatment plant.

—More than six times as many cases of smallpox have been reported in this state during the present year as were reported for the same period last year, the number of cases being 525 and 83, respectively. The most persistent foci, says the state department of health, are in St. Clair and Madison counties, where outbreaks are confined largely to East St. Louis and Alton. About ten cases at Northwestern University, Evanston, recently led to the issue of a general vaccination order affecting the student body.

—The new home for the department of physiology, physiological chemistry and pharmacology at the University of Chicago will be a six story building, facing Fifty-eighth Street, with its entrance where Ingleside Avenue now runs, the avenue having been vacated for that purpose. It will be a unit of the group of buildings for medical education which the university will erect in the near future, and for which funds have been provided independently of the university's \$17,500,000 development program.

—At a joint meeting of the Chicago Neurological Society, the Institute of Medicine and the Chicago Pediatric Society, March 19, the subject for discussion was "Medical Aspects of Behavior Disorders in Children." Among the participants were Dr. Bert I. Beverly, Children's Memorial Hospital; Drs. David M. Levy and Herman M. Adler, of the University of Illinois; Dr. Isaac A. Abt, Prof. L. L. Thurstone, Prof. Frank N. Freeman, Ph. D., Dean John H. Wigmore and Prof. Thomas D. Eliot.

—An All-Community Health Pageant was held at the Masonic Temple, Sixty-first Street and Cottage Grove Avenue, March 13-14, under the sponsorship of the Jackson Park Branch of the Chicago Medical Society, the Illinois Federation of Women's Clubs, and with the cooperation of the Chicago Dental Society, Chicago Health Department, the state department of health and the Chicago Retail Druggists Association. Among others, Dr. Morris Fishbein, Editor, Journal of the American Medical Association; Dr. Henry B. Thomas, University of Illinois; Dr. George T. Palmer, and Dr. Robert W. C.

Francis gave addresses. In the old people's contest, a prize was given for the most healthy person past 70 years of age.

—Stating that Illinois has been backward in maternity and child hygiene work, compared with other states, the state commissioner of health announces that correspondence courses of instruction for prospective mothers have now been arranged. Every prospective mother in the state, who desires, may enroll. The course will begin with nine lessons in antenatal instruction. Practical questions dealing with preventive problems will be promptly answered by especially qualified physicians, but treatment will be left entirely to private physicians. This is part of a program in maternity, infant and child hygiene, which is a cooperative undertaking participated in by the state medical society, the state federation of women's clubs and other organizations.

—The Chicago Council of Medical Women will meet April 28, 1925, at 8 P. M., at the American College of Surgeons, 40 East Erie Street. The year's study of hemorrhage will close with the following program: Hemorrhage of the Anterior Eye, Ione F. Beem; Hemorrhage of the Posterior Eye, Beulah Cushman; Hemorrhage of the Ear, Alice Hall; Tonsillar Hemorrhage, Gertrude Thompson; Nasal Hemorrhage, Margaret M. Jones. Discussion opened by Emily Selby. Dinner at 6:30 at the Petit Gourmet, 615 North Michigan Avenue. Members of the profession are cordially invited to both the dinner and the program. Anna E. Blount, President; Lena K. Sadler, Secretary.

—La Salle County Medical Society elected the following officers: President, S. E. Parr, Ottawa; vice-president, J. W. Geiger, La Salle; secretary and treasurer, E. E. Perisho, Streator; delegate, Wm. Schoenneshoefer, Streator; alternate, Jas. S. Green, Utica. Board of Censors, P. M. Burke, La Salle, Roy Sexton, Streator, B. J. Nauman, Peru.

—Coles-Cumberland Medical Society elected the following officers: President, R. H. Craig; vice-president, Norman Starr; secretary-treasurer, E. E. Richardson; delegate, C. E. Morgan. Board of Censors, H. A. Shaffer.

—Fulton County Medical Society elected the following officers: President, R. H. Maguire, St. David; vice-president, C. N. McCumber;

secretary-treasurer, C. D. Snively; delegate, E. P. Coleman. Board of Censors, A. C. Cluts, W. L. Crouch and W. B. Gray.

Deaths.

CARL BERNHARDI, SR., Chicago; University of Berlin, Germany, 1867; a Fellow A. M. A.; aged 81; died, March 3, at the North Chicago Hospital, of pneumonia.

GEORGE MARTIN BLACKBURN, Minier, Ill.; University of Wooster Medical Department, Cleveland, 1869; Civil War veteran; aged 80; died, February 4, at the Brokaw Hospital, Bloomington, following an operation for strangulated hernia.

ALBERT MONROE DREW, Decatur, Ill.; Miami Medical College, Cincinnati, 1873; member of the Illinois State Medical Society; aged 76; died, March 1, at the Illinois Masonic Home, Sullivan, of heart disease.

ASA ROY FREEMAN, Bloomington, Ill.; St. Louis University School of Medicine, 1907; member of the Illinois State Medical Society; aged 42; died, February 20, of asphyxia due to gas presumably self-administered.

GEORGE JOSEPH GORDON, Chicago; University of Illinois College of Medicine, 1915; aged 34; was shot and killed, March 14.

DANIEL R. GROVER, Chicago; Dunham Medical College, Chicago, 1899; aged 71; died, March 7, of cerebral hemorrhage.

HARRY PARTEE HURLEY, Chicago; Cleveland Medical College, 1897; aged 64; died, March 13, of cerebral hemorrhage.

CHARLES W. MARTINIE, Mount Vernon, Ill.; Miami Medical College, Cincinnati, 1874; aged 77; died, February 12.

GEORGE WARNER MOSHER, Chicago; Rush Medical College, Chicago, 1905; a Fellow A. M. A.; member of the Chicago Laryngological and Otological Society; aged 46; died, March 19, of a self-inflicted bullet wound.

JAMES MITCHELL NEFF, Chicago; Medical Department of the University of Illinois, Chicago, 1898; a Fellow A. M. A.; formerly assistant professor of surgery, Northwestern University Medical School, Chicago, and instructor of surgery, Rush Medical College, Chicago; member of the Chicago Surgical Society; consulting surgeon to the Illinois Central Railroad; on the staffs of the Illinois Central and Roseland hospitals, and at one time on the staffs of the Mercy and St. Luke's hospitals; served in France with the British army during the World War; aged 50; died, March 9, at the Presbyterian Hospital, of cerebral hemorrhage.

RICHARD JOSEPH PIPER, Chicago; University of Michigan Medical School, Ann Arbor, 1875; formerly city physician; aged 75; died, March 6, of uremia.

OTHA WILLIAM FENTON SNYDER, Chicago; Physio-Medical Institute, Cincinnati, 1878; aged 75; died, February 19, of uremia and chronic nephritis.



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Illinois Medical Journal

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COLONIAL HALL—One of Eight Units in "cottage plan"

Maintaining the highest standards over a period of forty years, the Milwaukee Sanitarium stands for all that is best in the care and treatment of nervous disorders. Photographs and particulars sent on request.

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Physician-in-Charge

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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
THE ILLINOIS STATE MEDICAL SOCIETY

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No. 5

ILLINOIS MEDICAL JOURNAL

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under the direction of the Publication Committee of the
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Do not employ attorneys.

Send original articles and all communications relating to
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Membership correspondence to Dr. Harold M. Camp, Mon-
mouth, Ill.

Society proceedings and news items and changes in the
mailing list to Dr. Henry G. Ohls, Managing Editor, 7626
Bosworth Avenue, Chicago.

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after three months from date of publication, 50 cents.

Editorial

THE ANNUAL MEETING OF THE ILLINOIS STATE MEDICAL AT QUINCY, MAY 19-20-21

You should attend the annual meeting of the
State Society; death or serious illness are the
only unanswerable legitimate excuses for ab-
sence. You owe it to your State Society, to your-
self, to your professional brethren, your family
and your patients, to attend and participate in
the proceedings of this gathering. Bring the
family along, that you may the more fully enjoy
the social and vacational features of the occasion.
Make a vacation, brief though it may be, of these
days and relax from the strain and deadly rou-
tine of the regular day's work.

Take part in the scientific program, that you
may not profit by the dissertations of those pre-
senting prepared theses but that you may con-
tribute to the sum total medical knowledge those
things that you have learned in the course of
actual practise. Exchange of ideas is the healthy
basis of our conventions. You will find it profit-
able to give to, as well as to receive from, your
co-workers in science and art; in fact, it is only
through active participation in the general dis-
cussions or private conferences, and by the inter-
change of thought and experiences that you can
secure the full benefit of the meeting. Your
contribution, though in your modesty deemed
very small, may be of great importance to some-
one,—it is conceivable that it may supply the
missing link in some highly important studies.

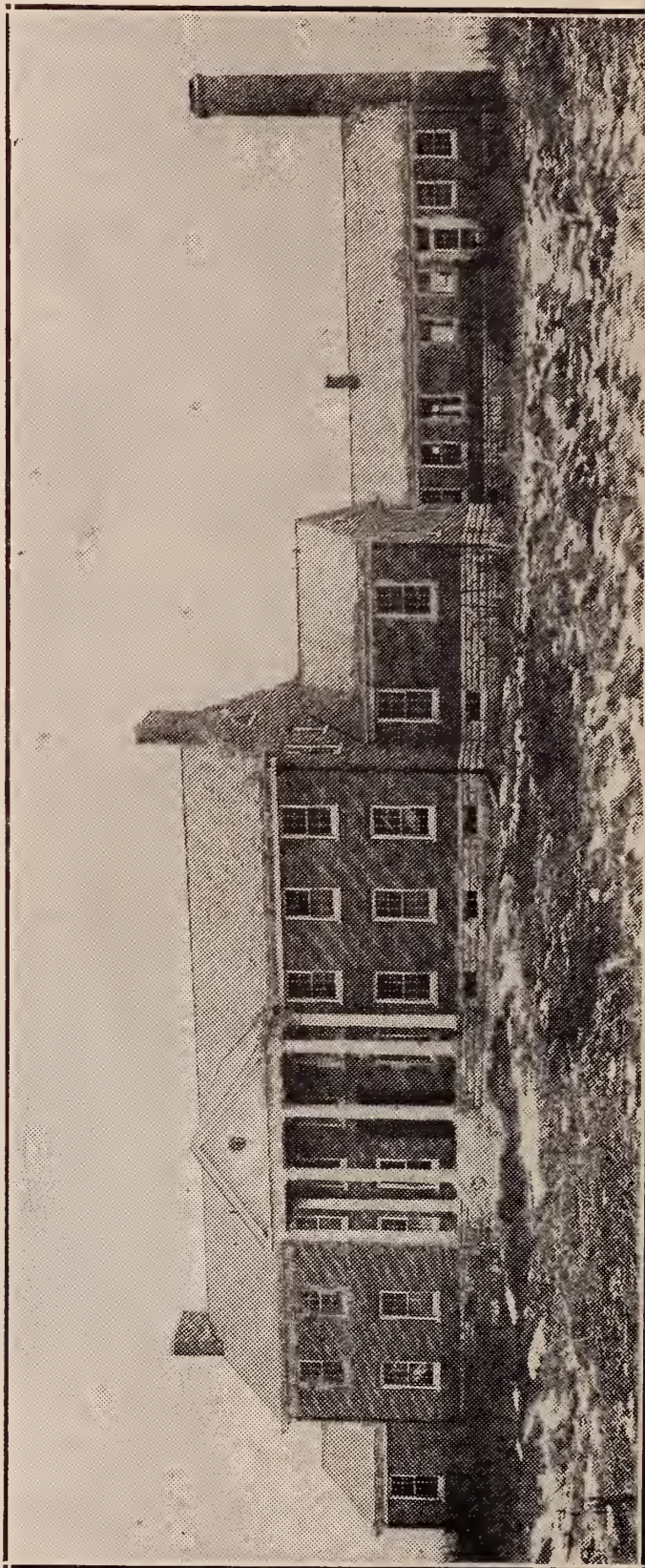
Remember that if you do not attend the ses-
sion or do not give expression to your views and
preferences, you have no one but yourself to
blame for the results. These meetings are held
for the purpose of bringing all members into
conference and for taking a consensus of opinion
on policies and on the selection of representatives
to conduct the Society work. Play your part; or
you must perforce hesitate to complain of unsat-
isfactory developments.

QUINCY MEETING, 1925

Long before Father Marquette discovered the Mississippi River and sailed down by the spot where Quincy is now located, this Bluff which over-looks the River was a meeting place for "Good Indians." True to its tradition, the Quincy medical profession hopes that there will be a recrudescence of this spirit; and the Good Indians of the medical profession of Illinois will make this point a meeting place for good fellowship and bumping elbows, as it were, with their colleagues, as well as drinking at the fountain of scientific knowledge. We would not imply that the latter is not the biggest factor in medical progress—since our general program is full of it—but the social side of our lives is often neglected.

This year, being the 75th Anniversary of the organization of the Illinois State Medical Society, as well as the Adams County Medical Society, will mark an epoch in the medical affairs in the middle west. In keeping with this Diamond Jubilee, an unusual program has been arranged. A Smoker has been arranged for Wednesday evening, and good vaudeville, good music, and good "eats" have been arranged for. During the time that this Smoker will be held, an entertainment for the wives of the visiting members has been arranged for in the form of a Theater Party—to which "Friend Wife" is cordially invited. On one of the days of the meeting, an auto trip will be arranged for the ladies to Mark Twain's old home and the Hannibal Cave made famous by this noted author of Huckleberry Finn—Hannibal being but a short distance across the river. A Symposium by the four Medical Colleges of Chicago will be a part of the scientific program. The Members of the Faculty of the respective institutions taking part in same—this new feature in Medical Society affairs will naturally appeal to the Alumni, and a friendly rivalry is looked for. Dr. Geo. W. Crile of Cleveland will deliver the address on Surgery, and Dr. Charles P. Emmerson of Indianapolis will deliver the address on Medicine. The officers of the different sections assure us that the program in their sections will be interesting and instructive.

Quincy is the largest city between Chicago and Kansas City, and is on the border line between



Illinois and Missouri, just below the Iowa line. It is interesting to note that the geographical center of the United States is a few miles north, while the center of population is a few miles east of Quincy. Its present population is well over 40,000, and its Parks are known the world over, comprising 375 acres over-looking the valleys and along the streams and creeks. As an educational center, it ranks high—Chaddock School,

Upper Mississippi Valley or in the State of Illinois, west of the Illinois River; and Quincy makes a greater variety of articles of commerce and utilities than any other City on the Mississippi river—Chicago and St. Louis excepted. Its manufactured products go to all parts of the World—among them are stoves, furnaces, metal wheels, tractors, farming impliments, incubators, poultry supplies, pumps, governors, dyes, shoes,



Municipal Swimming Pool, South Park

a Methodist Institution, and Quincy College, which is conducted by the Franciscan Fathers, and the Gem City Business College, which trains annually between 1,200 and 1,300 pupils. Its Public Library is one of the best in the State, containing 35,000 volumes.

The City of Quincy is the largest industrial center in the Mississippi Valley, west of Chicago and north of St. Louis. It has a greater number of industries than the combination in the

phonographs, elevators, boilers, structural steel, clothing and paper.

All the above information is valuable and worth while, but the part that will appeal to the average physician, who attends medical meetings of his profession, that the local medical profession is made up of a lot of men who will be good scouts and hospitable, if you will give them a chance to entertain you by coming to the meeting next month. We suggest that those who

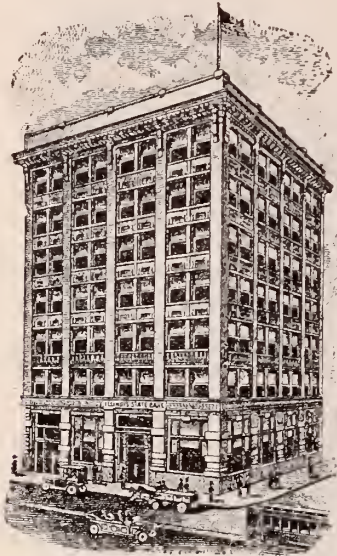
come by train, secure a Certificate of Purchase when they buy their ticket, which will be vali-

will find more convenient. Those who wish to travel by auto will find the Hard Roads (Route



New Elks Club

dated at Quincy, and enable the members to return home at half-fare rates. It will be



Illinois State Bank Building

necessary for, at least, 150 visiting members to do this, in order, to induce the railroad to make

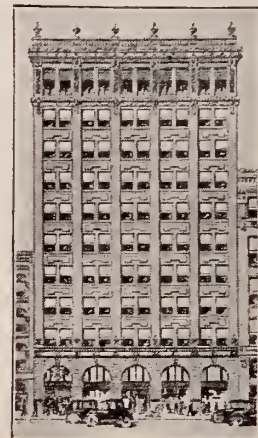


Quincy College

this concession. Quincy is situated on the C. B. & Q., the Wabash, and the K. Line from St. Louis, which route southern Illinois Members



George Rogers Clark Monument, Riverview Park
31) a convenience with a possible interruption by a few miles of dirt road, which obtains but a short distance.



Western Catholic Union Bldg.

In the language of the kid that called, "Skinney, C'on over. Run like everythin'."

WARREN PEARCE,
Chairman Arrangement Committee.
H. P. BEIRNE,
Chairman Program and Publicity.

THE QUINCY MEETING

The seventy-fifth annual meeting of the Illinois State Medical Society will be held, as in former years, during the third week of May, 1920-21. This meeting will be an epoch making one since it will be the Diamond Jubilee Meeting of our state society, as well as that of our hosts, the Adams County Medical Society, both societies having been organized in 1850. An unusual and interesting program is being arranged for, both by the program committee, and the local committee of arrangements. Everything points toward a large attendance, since few of the men now in active practice in Illinois will ever again have an opportunity to attend a jubilee meeting—most of us will have crossed the Great Divide, when the one hundredth milestone in organized medicine shall have been reached. The Hotel Quincy will be headquarters; reservations may be made by addressing the manager, Hotel Quincy; other hotels, all European, are Newcomb Hotel, Virginia Hotel, Park Hotel, Hasse Hotel. Quincy is one of the most westerly points in Illinois. Physicians residing in the northern part of Illinois, Chicago, etc., may reach us via Burlington Route; those coming from eastern part of the state may conveniently use the Wabash; while those from southern Illinois will obtain better service via St. Louis. Through train service may be had on all of above lines. Some may wish to drive via hard roads; to these will say there is a gap of dirt road about 50 miles east of here which may, if season should be wet, make travel by auto difficult, while if weather should be pleasant, the few miles of dirt roads will not cause any serious inconvenience. A good program, with some novel features, and a good time are assured. We take the liberty to suggest that the secretary of each respective county society will read above at their next regular meeting. Quincy will be glad to entertain you. Let's go.

WARREN PEARCE,

General Chairman, Committee of Arrangements.

H. P. BEIRNE,

Chairman Publicity and Program Committee.

REUNION AND DINNER OF THE MEDICAL OFFICERS OF THE WORLD WAR

An attractive feature of the annual meeting of the American Medical Association at Atlantic City will be the reunion of the medical men who served their country in the Army and Navy during the World War, to renew the memories, friendships and associations of those eventful days. The Chief Surgeon of the A. E. F. will be there, and the President of the Association of Military Surgeons, Surgeon General Hugh E. Cumming, and other officers of the Association under whose auspices the meeting will be held. An effort will be made to group together those who served in the same organizations and so it is requested that reservations be made as early as possible, and that comrades state in writing for them the base hospital or other medical unit to which they belonged. Write for tickets to Colonel Burt R. Shurly, Med.-Res., U. S. A., 62 West Adams Ave., Detroit, Michigan.

TIME AND PLACE—May 27th, at 7 P. M., at the Ritz-Carlton Hotel, Atlantic City.

Members of the Association of Military Surgeons are requested to wear the badge of the Association.

SEND THEM TO BED WITH A KISS

O mothers, so weary, discouraged,
Worn out with the cares of the day.
You often grow cross and impatient,
Complain of the noise and the play;
For the day brings so many vexations,
So many things going amiss;
But, mothers, whatever may vex you
Send the children to bed with a kiss!

The dear little feet wander often,
Perhaps, from the pathway of right,
The dear little hands find new mischief
To try you from morning till night;
But think of the desolate mothers
Who'd give all the world for your bliss
And as thanks for your infinite blessings,
Send the children to bed with a kiss!

For some day their noise will not vex you,
The silence will hurt you far more;
You will long for their sweet childish voices,
For a sweet childish face at the door;
And to press a child's face to your bosom,
You'd give all the world for just this!
For the comfort 'twill bring you in sorrow,
Send the children to bed with a kiss!

—New Orleans Picayune.

ILLINOIS STATE MEDICAL SOCIETY

SEVENTY-FIFTH ANNUAL MEETING

*Quincy, Illinois, May 19-20-21, 1925***OFFICERS**

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 S. J. McNeill.....3rd District, Chicago, 1926
 G. B. Dudley.....8th District, Charleston, 1926
 Andy Hall.....9th District, Mt. Vernon, 1927
 R. R. Ferguson.....3rd District, Chicago, 1927
 H. P. Beirne.....6th District, Quincy, 1927

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 Walter Stevenson.....Quincy
 Grant Irwin.....Quincy
 W. W. Williams.....Quincy

MEETINGS OF THE HOUSE OF DELEGATES

Tuesday Evening, May 19, 1925

Elks Club Auditorium

9:00—Meeting called to order by the president, L. C. Taylor, for reports of Officers, Committees, and other business to come before the house.

Thursday Morning May 21, 1925

Chamber of Commerce

8:00—Meeting called to order by the President for the election of officers, reports of committees and other unfinished, and new business.

ENTERTAINMENT

On Tuesday afternoon, May 19, it is planned to take the ladies on an automobile trip down the river to Hannibal, Mo., to visit the Mark Twain Cave, and other points of interest. Dinner will be served at Hannibal.

Wednesday, May 20, another automobile trip is planned for the ladies, to start at 10:00 o'clock. At 3:00 P. M., a Bridge Tea will be given at the

Country Club. Wednesday evening, there will be a theater party for the ladies.

For the Members of the Society and Guests, there will be a smoker entertainment and lunch Wednesday evening, May 20, at 9:00 o'clock. The nature of the program has not been announced by the committee on arrangements, but it will be an excellent one.

A number of Alumni and Fraternity Banquets will be held during the meeting and will be announced on the bulletin boards.

GENERAL SESSIONS

Elks Club Auditorium

Tuesday Evening, May 19, 1925

7:30—Call to order of the Society by the President, L. C. Taylor. Invocation, Rev. Robert L. Logan. Address of Welcome, Mayor Frank A. Jasper. Report of the Committee on Arrangements, Warren Pearce, Quincy. Address—William Allen Pusey, President, American Medical Association, Chicago.

Wednesday Afternoon, May 20, 1925

1:30—Meeting called to order by First Vice-President John R. Neal. President's Address. L. C. Taylor, Springfield. "Some of the Present and Future Problems of the Medical Profession".

2:15—Oration in Medicine:—"Hippocrates or Paracelsus". Charles P. Emerson, Dean and Professor of Medicine, Indiana University School of Medicine, Indianapolis.

3:15—Oration in Surgery: "Hyperthyroidism and Peptic Ulcer—An Analogy," George W. Crile, Professor of Surgery, Western Reserve University School of Medicine, Cleveland.

Thursday Morning, May 21, 1925

8:00—Symposium, Northwestern University Medical School. Industrial Surgery: 1. Study of the Treatment of Injuries to the Hand, Sumner L. Koch, Chicago. 2. Acute Intestinal Obstruction, Wm. R. Cubbins, Chicago. 3. Surgery of the Thorax, Ralph B. Bettman, Chicago.

9:20—Symposium, University of Illinois School of Medicine. Differential Diagnosis: 1. The Abdomen, Edward Louis Heintz, Chicago. 2. The Chest, Maurice Lewison, Chicago and W. J. Quigley, Chicago.

10:40—Symposium, Loyola University School of Medicine. Goiter: 1. Surgical Considerations, E. L. Moorhead, Chicago. 2. Medical

Considerations, Chas. L. Mix, Chicago. 3. Pathological Considerations, Lloyd Arnold, Chicago. 4. Eye Considerations, Richard J. Tivnen, Chicago.

Thursday Afternoon, May 21, 1925

1:30—Report of the House of Delegates. Introduction of the President-Elect.

1:45—SECRETARIES' CONFERENCE.

W. C. Blaine, President.

Harold Swanberg, Vice-President.

J. S. Templeton, Secretary.

1. Why Jefferson County Has a 100% Membership—J. W. Hamilton, Secretary Jefferson County Society, Mt. Vernon.

Discussion by E. W. Fiegenbaum, Secretary Madison County Society, Edwardsville.

2. Improving the Attendance and Interest in the County Society Meetings—Ralph Graham, Secretary Warren County Society, Monmouth. Discussion by R. R. Ferguson, Secretary Chicago Medical Society.

3. The County Society, and County Secretary's Relation to the State Secretary—Wm. D. Chapman, Silvis, Ex-Secretary Illinois State Medical Society.

4. The Interests of the Medical Profession now before our State Legislature—John R. Neal, Chairman Legislative Committee, Springfield.

5. What We Expect of the County Secretary the Coming Year—J. C. Krafft, President-Elect Illinois State Medical Society, Chicago.

6. The Secretaries' Conference in 1926—Harold Swanberg, Secretary Adams County Society, Quincy.

Dr. Franklin H. Martin of Chicago, Chairman of the Board of the Gorgas Memorial Institute of Tropical Medicine, will talk on the Gorgas Memorial work of the past year, and what is planned for the future.

The American Association for Medical Progress will be represented at the meeting by Dr. Llewellyn Sale of St. Louis, who will give a short talk on the work of that organization.

The talks of Dr. Martin and Dr. Sale will be

given at the first general session on Tuesday evening May 19, 1925.

SECTION PROGRAMS

SECTION ON MEDICINE

Elks Club Auditorium

Tuesday, May 19, 1:00 P. M.

- J. H. Hutton, Chairman, Chicago.
- B. V. McClanahan, Secretary, Galesburg.
- 1. Fifty Years of Medical Progress—Charles B. Johnson, Champaign.
- 2. Feeding the Normal Baby—F. Emerson Inks, Princeton.
Discussion opened by S. H. Kraft, Chicago.
- 3. Relation of Psychic Disturbances to Head Injuries—George W. Hall, Chicago.
Discussion opened by L. H. Sloan, Chicago, and C. G. Farnum, Peoria.
- 4. The Diagnosis of So-called Toxic Adenoma and Exophthalmic Goiter—Wilbur L. Bowen, Peoria.
Discussion opened by J. K. P. Hawks, Bloomington.
- 5. Treatment of Scarlet Fever and Its Complications—Archibald Hoyne, Chicago.
Discussion opened by George Weaver, Chicago.
- 6. Oral Mycosis with Report of Case—Dudley W. Day, Rockford.
Discussion opened by John Tuite, Rockford.
- 7. Dangers and Safeguards of Alkali Treatment of Peptic Ulcers—L. C. Gatewood, Chicago.
Discussion opened by A. A. Goldsmith, Chicago.
- 8. Pyelitis of the New Born—Robert H. Graham, Aurora.
Discussion opened by James Wallace, Oak Park and G. L. Kaufman, Chicago.
- 9. Treatment of Gonorrhea—A. E. Mowry, Chicago.
Discussion opened by Damon Brown, Madison, Wis.
- 10. Alzheimer's Disease, with lantern slides—Frank Parsons Norbury, Jacksonville.
Discussion opened by Charles F. Read, Chicago.
- 11. Outlook for T. B. Patients—Henry C. Sweany, Chicago.
Discussion opened by Clarence Wheaton, Chicago.
- 12. The Ambulant Treatment of Hernia—G. A. McDonald, Fairfield.

Discussion opened by J. E. Dixon, Fairfield.

- 13. A Study of One Hundred and Twenty Male Epileptics—Thomas G. Hall and Charles F. Read, Chicago.
- 14. Child Hygiene, Edith B. Lowry, Springfield.

SECTION ON SURGERY

Chamber of Commerce

Tuesday, May 19, 1:00 P. M.

- Ben D. Baird, Chairman, Galesburg.
- Philip H. Kreuscher, Secretary, Chicago
- 1. Some Phases of the Cancer Question—Carl E. Black, Jacksonville.
Discussion opened by Henry Schmitz, Chicago.
- 2. Intestinal Anastomosis From the Anatomical and Technical Standpoint—Walter J. Sullivan, Chicago.
Discussion opened by M. S. Griffith, Galesburg.
- 3. Traumatism of the Head—H. C. Mitchell, Carbondale.
Discussion opened by Wm. R. Cubbins, Chicago.
- 4. Prognosis of Intracranial Tumors; Motion Picture Demonstration—Loyal E. Davis, Chicago.
Discussion opened by Charles P. Blair, Monmouth.
- 5. Plastic Repair of Defects of the Scalp—Everett P. Coleman, Canton.
Discussion opened by Carl Beck, Chicago.
- 6. Fractures of the Head of the Femur—Frederick Christopher, Chicago.
Discussion opened by Ralph McReynolds, Quincy.
- 7. Diaphragmatic Hernia—J. W. Dreyer, Aurora.
Discussion opened by C. Matthews, Chicago.
- 8. Thrombo-Angiitis Obliterans—John D. Claridge, Chicago.
Discussion opened by J. K. P. Hawks, Bloomington.
- 9. Fractures of the Neck of the Humerus—Clyde A. Finley, Galesburg.
Discussion opened by S. C. Woldenburg, Chicago.
- 10. Some Practical Points in the Diagnosis and Treatment of Acute Pancreatitis—John A. Wolfer, Chicago.
Discussion opened by Homer F. Moore, Rockford.

11. Reclaiming Hopeless Chest Cases; Presentation of Cases—Don Deal, Springfield.
Discussion opened by Emil Beck, Chicago.
12. Pre-operative and Post-operative Treatment of Prostatic Adenomata—Frank M. Phifer and D. F. Rudnick, Chicago.
Discussion opened by Ray Edgar Barrows, Cairo.

SECTION ON EYE, EAR, NOSE AND THROAT

W. R. Fringer, Chairman, Rockford
Chas. M. Robertson, Secretary, Chicago.

Diagnostic and Demonstration Clinics

Odd Fellows' Hall

Tuesday, May 19, 9:00 A. M.

1. Nature and Causes of Disorders of Speech—Elmer L. Kenyon, Chicago.
2. The History of Spectacles—James E. Lebensohn, Chicago.
3. Glaucoma—Harry W. Woodruff, Chicago.

2:00 P. M.

4. Lesions of the Optic Chiasm—George F. Suker, Chicago.
5. Affections of the Ear in General Disease—George W. Boot, Chicago.
6. Surgical Treatment of Ethmoiditis—Harry L. Pollock, Chicago.

(The section banquet will be held at the Country Club Tuesday evening.)

Wednesday, May 20, 8:00 A. M.

Odd Fellows' Hall

1. Preventable Accidents in Cataract Operations—William A. Fischer, Chicago.
Discussion opened by C. C. Clement, Chicago.
2. Is Malaria an Etiologic Factor in Iritis?—R. C. Matheny, Galesburg.
Discussion opened by A. L. Adams, Jacksonville.
3. Cholesteotoma Involving the Ethmoidal Cells and the Antrum of Highmore—G. C. Otrich, Belleville.
4. Ludwig's Angina—C. F. Yerger, Chicago.
Discussion opened by H. C. Ballenger, Chicago.
5. Defects in the Tone Scale, With Relation to Poor Spelling and Loss of Musical Tone—Frank L. Alloway, Champaign.
Discussion opened by Thomas J. Carmody, Danville.
6. Observations of the Fundus in General

Paralysis of the Insane Through Administration of Hyparsemid, and a Comparison With Neo-Salvarsan. (Preliminary Report)—J. H. Roth, Kankakee.

Discussion opened by Solomon Jones, Danville.

7. Methods of Controlling Hemorrhage After Tonsillectomy—E. J. Nothenberg, Chicago.
Discussion opened by Albert H. Andrews, Chicago.
8. Focal Infections, Successes and Failures—Edwin McGinnis, Chicago.
Discussion opened by A. B. Middleton, Pontiac.
9. The Determination of Retinal Blood Pressure—James E. Lebensohn, Chicago.
Discussion opened by George F. Suker, Chicago.
10. Sarcoma of the Orbit—G. S. Duntley, Macomb.
Discussion opened by Walter Stevenson, Quincy.

SECTION ON PUBLIC HEALTH AND HYGIENE

Chamber of Commerce

Tuesday, May 19, 1:00 P. M.

D. J. Lynch, Chairman, Chicago.

C. H. Diehl, Secretary, Effingham.

1. Typhoid Fever Epidemic Evidently Due to Infected Oysters—C. T. Roome, Evanston.
Discussion opened by S. S. Winner, Chicago.
2. Some Public Health Problems, Revealed by the Medical Histories of High School Graduates—J. Howard Beard, Urbana.
3. Prevention of Goiter—E. P. Sloan, Bloomington.
Discussion opened by J. H. Hutton, Chicago.
4. The Responsibility of the Medical Profession to the Rising Generation—June L. Edmondson, Chicago.
Discussion opened by Elizabeth B. Ball, Springfield.
5. Rural Water Supplies and Sewerage—Harry F. Ferguson, Illinois Chief Sanitary Engineer, Springfield.
6. The Public Health Nurse as a Factor in Medical School Inspection—Mrs. Madge D. Reiseman, R. N., Chicago.
7. The County Health Unit—Thomas Parran, Jr., U. S. Public Health Service, Springfield.

Discussion opened by C. E. Price, Robinson, Director of Crawford County Unit.

8. The Cancer Prevention Problem in Urology—Lewis Wine Bremerman, Chicago.

Discussion opened by Walter C. Willhelmj, East St. Louis.

9. Factors in the Reduction of Typhoid in the City of Chicago—John Dill Robertson, Chicago, Ex-Health Commissioner of Chicago.

10. Public Health Problems as Related to Mental Diseases—Chas. F. Read, Chicago.

11. Public Health Work as Viewed by One in General Practice for the Last Quarter of a Century—Jas. S. Templeton, Pinckneyville. Discussion opened by Wm. E. Shastid, Pittsfield.

12. Public Health, and the Medical Profession in Illinois—H. N. Heflin, Kewanee.

Discussion opened by L. O. Frech, Decatur.

All papers read by members shall be limited to twenty minutes and remarks in discussion to five minutes, floor privilege being allowed only once for the discussion of any one subject.

All papers read before the Society or any of its sections shall become the property of the Society. Each paper shall be deposited with the Secretary when read and the presentation of a paper to the Illinois State Medical Society shall be considered tantamount to the assurance on the part of the writer that such paper has not already appeared and shall not appear in medical print before it has been published in the ILLINOIS MEDICAL JOURNAL.

A paper not heard in its scheduled turn, shall be held subject to the call of the Chairman of the section at the end of that regular session, if time permits;—or as an alternative at the end of the program.

All discussions shall be confined strictly to the subject in hand.

No paper shall appear in the printed transactions of the meeting, unless read in full or in abstract.

EXHIBITORS

Fellows Medical Manufacturing Company, 26 Christopher St., New York City.

Universal Sales Company, Quincy, Illinois.

The Abbott Laboratories, 4753 Ravenswood Ave., Chicago.

Flint, Eaton & Company, Decatur, Illinois.

Sharp & Smith, 65 East Lake St., Chicago.

Deshell Laboratories, 589 East Illinois St., Chicago.

Standard Oil Company of New Jersey, New York City.

Chas. H. Phillips Company, 80 Varick St., New York City.

Mead Johnson Company, Evansville, Ind.

Cameron's Surgical Specialty Company, 110-12 W. Oak St., Chicago.

American Optical Company—F. A. Hardy Div.—10 S. Wabash Ave., Chicago.

John McIntosh Company, 1880 Ogden Ave., Chicago.

The Laboratory Products Company, Cleveland, Ohio.

G. D. Searle & Co., 4611-17 Ravenswood Ave., Chicago.

Burdick Cabinet Company, Milton, Wisconsin.

Physicians Supply & Drug Company, 425-27 So. Honore Street, Chicago.

C. V. Mosby & Company, 508 North Grand Blvd., St. Louis.

Huston Brothers Company, 30 East Randolph St., Chicago.

Horlicks Malted Milk Company, Racine, Wisc.

Acme-International X-Ray Company, 341 W. Chicago Avenue, Chicago.

Radium Chemical Company, Marshall Field Annex Bldg., Chicago.

Merrell-Soule Company, Syracuse, New York.

Sutliff & Case Company, Peoria, Illinois.

A. S. Aloe Company, 513 Olive St., St. Louis.

Lavoris Chemical Company, Minneapolis.

Frank S. Betz Company, Hammond, Indiana.

Mellins Food Company, Boston, Mass.

W. B. Saunders Company, West Washington Square, Philadelphia.

Brown Drug Company, Quincy, Illinois.

Hettinger Brothers Company, St. Louis, Mo.

Illinois Tuberculosis Association, 516½ East Monroe St., Springfield, Ill.

Swan-Myers Company, Indianapolis, Indiana.

Special Products Company, O'Fallon, Illinois.

Hanovia Chemical & Mfg. Co., Chestnut St. & N. J. R. R. Ave., Newark, N. J.

H. G. Fischer & Company, 2333-35 Wabansia Ave., Chicago.

Medical Protective Company, Fort Wayne, Ind.

Ciba Company, Inc., Cedar & Washington Sts., New York City.

Standard Chemical Company, Des Moines, Ia.

In addition to the commercial exhibits there

will be many scientific and educational exhibits from the American Medical Association, Illinois Dental Society, the Medical Schools, American Association for Medical Progress, and other organizations interested in Health Work.

ILLINOIS PUBLIC HEALTH LABORATORY ASSOCIATION

Third Meeting, May 19, 1925

Quincy Hotel, Quincy, Illinois.

- 9:00 a. m. Meeting of Council.
 9:30 a. m. Morning Session.
 Address of Welcome.
 Reports of Officers and Committees.
 Miscellaneous and New Business.
 Election of Officers.
 Address of Retiring President,
 "Laboratory Work in the Tornado Zone of Southern Illinois."
 12:15 p. m. Noon Luncheon—Quincy Hotel.
 Round table discussion.
 1:30 p. m. Afternoon Session—Scientific Program:
 1. The Diagnosis and Prevention of Hay Fever. John R. Porter, Rockford.
 2. Present Technic of the Wassermann Reaction. Dr. Mary H. Swan, National Pathological Laboratories, Chicago.
 3. Methods for the Study of Anaerobes in Raw and Putrified Sewage (with demonstration). John F. Norton and Frank E. Greer, University of Chicago.
 4. Practical Methods for Isolation of the Gonococcus. Dr. John L. White, Department of Health, Chicago.
 5. Increasing Importance of Blood Chemistry in Laboratory Diagnosis. Dr. Henry C. Sweany, Municipal Tuberculosis Sanitarium, Chicago.
 6. The Widal Test as Carried out in Public Health Laboratories. Thomas G. Hull, State Department of Public Health, Springfield, Ill.
 7. Underwater Lighting of Swimming Pools. B. Norman Bengtson, University of Illinois, College of Medicine, Chicago.

PRIZES TO BE AWARDED AT THE NATIONAL BABY CONGRESS AND HEALTH EXPOSITION, CHICAGO, MAY 2nd-9th, '25, UNDER THE SUPERVISION OF THE ILLINOIS STATE MEDICAL SOCIETY

GRAND AWARD

Five hundred dollars to the highest scoring boy or girl between the ages of 1 and 6 years. This amount is now on deposit in the Boulevard Bridge Bank, contributed by the Chicago Portrait Photo Association.

Silver cup to be presented to the mother of the highest scoring child. Contributed by the Chicago Herald Examiner.

Three silver cups to highest scoring boy under 1 year—highest scoring girl under 1 year—highest scoring pair of twins. Contributed by the Nestle Food Company, New York, N. Y.

Two hundred dollars Add-A-Pearl necklace to the highest scoring girl in the Healthy Youth Contest (between the ages of 6 and 18 years). Contributed by the Add-A-Pearl Company.

White gold watch, 19 jewel to the highest scoring boy in the Healthy Youth Contest (between the age of 6 and 18 years). Contributed by the Illinois State Medical Society.

Northwestern Railroad and Pullman ticket to and from Eagle River, Wisconsin (summer resort), to the highest scoring woman in the Adult Health Contest (over 18 years of age). Contributed by the Illinois State Medical Society.

Northwestern Railroad and Pullman ticket to and from Eagle River, Wisconsin (summer resort), to the highest scoring man in the Adult Health Contest (over 18 years of age). Contributed by the Illinois State Medical Society.

Five hundred dollars equity in a lot located in Evanston subdivision to the highest scoring woman in the Adult Health Contest, open to all

over 18 years of age. Contributed by the North Shore Realty Company.

DIVISION AWARDS

Division 1, children 6 to 12 months of age—	
Highest scoring boy	\$25.00
Highest scoring girl	25.00
Division 2, children 12 to 36 months of age—	
Highest scoring boy	\$25.00
Highest scoring girl	25.00
Division 3, children 36 to 72 months of age—	
Highest scoring boy	\$25.00
Highest scoring girl	25.00
Division 4, twins 6 to 72 months of age—	
Highest scoring pair.....	\$25.00
2nd highest scoring pair.....	15.00
Division 5, triplets 6 to 72 months of age—	
Highest scoring set.....	\$25.00
2nd highest scoring set.....	15.00
Division 6, colored children 6 to 72 months of age—	
Highest scoring boy	\$25.00
Highest scoring girl	25.00

SPECIAL AWARDS

The following banks offer \$25.00 savings account for the highest scoring children in their respective neighborhoods:

Ashland State Bank.
 Boulevard Bridge Bank.
 Bowmanville National Bank.
 Bankers State Bank.
 Capitol State Savings Bank.
 Citizens State Bank of Chicago.
 Fidelity Trust & Savings Bank.
 Garfield Park State Savings Bank.
 Inland Trust and Savings Bank.
 Logan Square State & Savings Bank.
 Madison & Kedzie State Bank.
 Phillips State Bank.
 Roosevelt State Bank.
 Second Security Bank of Chicago.
 State Bank & Trust Company.
 Suburban Trust & Savings Bank.
 Washington Park National Bank.
 West Side Trust and Savings Bank.
 Liberty Trust & Savings Bank.

LIST OF EXHIBITORS

A revised and comprehensive list of exhibitors at the National Baby Congress and Health Exposition will be published in the June JOURNAL.

SIMPLICITY MUST REPLACE SUPERFICIALITY IN FUNDAMENTAL EDUCATION OR ALL SYSTEMS WILL FAIL
 REPETITIOUS PREPARATORY REQUIREMENTS
 WASTE TIME AND MONEY AND IMPEDE
 EFFICIENCY

MODERN MEDICAL TEACHING FALLS WITHIN
 GROUP ARRAIGNED BY FAMOUS EDUCATORS

Pleas for abridgement of preparatory training arise from educators the country over. Cognizance must be taken of the fact that the ablest years of a man's life are wasted before he even enters upon his chosen profession because of the rigors and repetitions,—unnecessary and wasteful,—that clog fundamental education for the professions.

Superficiality and ennui coupled with extravagance from an economic standpoint, both of time and of money, are three of the defects resulting from current educational systems. Teaching of medicine is one of the most glaring examples of the misuse of youth, time and wealth in almost endless repetitious processes of preparation. There is so much preparation there is scarcely time left for accomplishment.

Superficiality such as comes of too much making ready and not enough achievement, is a blot upon school hours and an ineradicable stain upon later life. To say the least, such a handicap is costly. In a recent report of the Carnegie Foundation for the Advancement of Teaching Dr. Pritchett suggests a first practical step to obviate this error.

Says Dr. Pritchett: "No nation can continue to offer sixteen years of preparatory education to its students, of this superficial sort, and meet its needs in educational training. If the work of education were rightly done, no such time ought to be required, and no nation can afford to turn its trained men into their professions so late in life as we are coming to do. Without question four years can be dropped out of this programme, with advantage to the cause of education, and to the interest of the people and of their children. But this change also is clearly related to that conception of education which assumes that the beginnings of education lie in the sincere learning of a few things, rather than in the superficial acquaintance of many."

"We in the United States have been disposed to pride ourselves on the variety of the courses of study offered in our schools, but rarely can one

find an American boy or girl, even among the graduates of the high school or college, who knows his own language as the English boy trained in the somewhat classical conception, knows the language. And rarely do we find an American youth who knows his science or language in the way a German boy is master of these subjects. The striking characteristic of our schools under the process of enrichment of curriculum, is superficiality, coupled with tremendously rising cost. There is only one way to better the quality of education, to diminish the cost and to give a fair reward to the teacher. That is to adopt a concept of the elementary school, of the high school, and of the college, that shall offer courses of study founded on the principle that whatever variation of courses may be offered it shall always be understood that the fundamental things shall be thoroughly mastered."

Continuance of the present wasteful system will inevitably result in "national intellectual famine." Fatal to a student, fatal to the mental life of his country is the "graduation idea" that "a presentable smattering is life's maximum requirement." To re-organize this defective system is a task crying for immediate and efficient remedy one that will ease the strain upon parents, teachers and children. Those beset with the "standardization" idea have in the current educational system, a fit target and a needy institution for their assistance and enlightenment.

To be successful, this renovation must cleave itself free from dependence upon European thought and system, and insist upon an enfranchisement of American ideas, ideals and thought. True scholarship is as simple and free as the true patriotism that made the United States possible as a prosperous democracy. True scholarship demands the creation of a *highly developed sense of duty and of work, and of a comparatively inhibited sense of play. There is not enough of incorporation of relative values into the daily work of the schoolroom. Fundamental education is considered now, by students at large, not as a vital segment of life work, but as a thoroughly extraneous thing apart.*

Conde B. Pallen says truthfully enough "Modern education has fallen under the blight of pseudo-science,—not genuine science but a false interpretation of scientific theories,—which are

neither established, nor if established, would carry the applications, to which popular expounders would push them. When you divide man into a number of things which dehumanize him, he ceases to be a man. If he is merely a bundle of nerve-ganglia, a chemical compound, and his rational part a ferment of endocrine glands, he is simply a suitable subject for the laboratory. Here is the real secret of the failure of modern education of which Dr. Nicholas Murray Butler complains."

Says Dr. Butler in part, barraging against the current educational system, "A State monopoly of schools is wholly un-American, and may come to mean compulsory paganism. education is the responsibility primarily not of the State, but of the family, and so far as religion is concerned, of the Church."

Which is a neat way of epitomizing the flagrant truth that modern educational systems, in an endeavor to gild the lily of culture by outdoing in ramifications and ubiquitousness both tradition and experience, are falling upon the common fate of every jack-of-all-trades humiliating failure.

Now is the time for educators of all classes to take stock of what is happening. And among those who make inventory, none need to look more closely than the directors of current medical education.

A LAWYER NEEDS NO CONSCIENCE

A doctor and a lawyer took a ride into the country and lost their way. They inquired of a farmer as to their whereabouts. In the conversation the farmer invited them to take a little bite to eat before starting home.

After a plain meal, they seated themselves on the porch and told stories. Every story by the doctor or the lawyer ended up in a jeer on farmers. "Now, then, Mr. Farmer," said the lawyer, "it seems you ought to tell a story."

"There was a certain prominent physician who had a serious operation to perform on one of his patients," said the farmer. "During the operation the physician became rather nervous and excited, and instead of removing the membrane he was after, accidentally took out the man's conscience."

Here the farmer stopped.

The lawyer inquired, "Well, what because of the patient? Did he get well?"

"Oh, yes," replied the farmer, "but having his conscience taken out he was not fit for anything else, so he studied law."—*Judge.*

A Corporation Practicing Medicine.

Is The Public Health Institute In Chicago Operating Within the Law?

Under date of April 17, 1925, the Public Health Institute sent to a select list of Doctors the following letter which we publish for your information, comment and action.

OFFICERS

A. A. CARPENTER,
PRESIDENT
T. R. GOWENLOCK,
VICE-PRESIDENT
MYRON E. ADAMS,
SECRETARY
ROBERT A. GARDNER,
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MEDICAL DIRECTOR

PUBLIC HEALTH INSTITUTE

ORGANIZED FOR PUBLIC SERVICE AS
A CORPORATION NOT FOR PROFIT

GENERAL OFFICES:

159 NORTH DEARBORN STREET
PHONE DEARBORN 8877-78-79-82

WOMEN'S DEPARTMENT, 72 E. RANDOLPH STREET
MEN'S DEPARTMENT, 159 N. DEARBORN STREET SOUTH SIDE, 129 E. 31ST STREET
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HAROLD F. MCCORMICK
BRIG. GEN. JAMES A. RYAN

April 17th, 1925.

Dear Doctor:

The Public Health Institute cordially invites you to inspect its "NEW DEPARTMENT FOR MEN" occupying four floors at 159 N. Dearborn St., on Friday, April 24th, between the hours of 10:00 A.M. and 9:00 P.M. There will be brief addresses by prominent national leaders at 2:30 P.M. and 8:00 P.M.

Five years ago, a group of public spirited Chicago business men, prompted to action as a result of their war experiences, set to work on a cooperative citywide effort to aid Chicago in the treatment, control and prevention of Social Diseases, and organized the Public Health Institute. It was Not for Profit but for Public Service.

During the past five years, the Institute has given more than 1,000,000 treatments to some 60,000 patients and today the average daily attendance is more than 1200. In spite of the low fee charged, the Institute has, because of its effective organization, been self-supporting. No one has been turned away for lack of money.

The Institute has supported and cooperated with research work through Northwestern University and the University of Wisconsin for the discovery and improvement of drugs useful in the treatment of venereal diseases. It has also granted a fund to the Social Hygiene Council for educational work.

The NEW DEPARTMENT FOR MEN is furnished with the most modern equipment for the treatment, comfort and care of patients. The increased number of treatment rooms permits of greater privacy and adds to the general efficiency of operation. Two thousand patients can be cared for daily in this new department.

Because of your interest in public welfare, we are anxious to have you see what we are providing and doing. Public knowledge of the ideals and purposes back of the work of the Institute and public confidence in the character of the service rendered, are two of the largest factors in winning the fight against these diseases which menace the welfare of our City and its Citizens.

Please take this opportunity to inspect the Institute.

Very sincerely yours,

PUBLIC HEALTH INSTITUTE,

Myron E. Adams, Secretary.

SUBSCRIBE TO THE LAY EDUCATIONAL FUND

IF THIS CONSTRUCTIVE WORK IS TO CONTINUE FUNDS MUST BE PROVIDED

The fund subscribed a year and a half ago by a comparatively few doctors, for the purpose of inaugurating the Lay Educational Bureau of the Illinois State Medical Society, is exhausted. Not one penny of the original fund was injudiciously spent. Results far-reaching in importance to the medical profession have thus far been accomplished by the Lay Educational Committee.

If the valuable work is to continue, additional money must be forthcoming. An appeal for subscriptions for this worth while enterprise was mailed to members of the profession a few weeks ago.

The lay education campaign cannot be prosecuted without funds; it must be supported by popular subscription. It is hoped that every doctor will subscribe to this worthy cause. Serious disease diverted from the incompetent will result in the saving of thousands of lives and will prevent much permanent invalidism.

This campaign will achieve two great objectives. A gradual, but ultimate restoration of the medical profession to its merited place in the public sympathy and confidence and the inestimable benefits to humanity through the consequent prevention of disease and the preservation of life.

For the convenience of those who have mislaid

their letter of appeal from the State Society, we hereby reproduce the pledge card:

Please sign and mail to the Illinois State Medical Society.

To the Officers of the Illinois State Medical Society and Members of the Council:

"I am in accord with the educational campaign, unanimously adopted by the House of Delegates of the Illinois State Society at the 1922 meeting and the plan recommended by the Council of the Society, and as evidence of my desire to cooperate with the officers of the council and of the State Society, I hereby enclose my check for \$..... to aid in defraying the expenses thereof:

MAKE CHECKS PAYABLE TO THE ILLINOIS STATE MEDICAL SOCIETY

NameM. D.

Street

CityCounty

Sign the above pledge card, make out a check payable to the Illinois State Medical Society and mail both in an envelope addressed as follows:

From

.....
.....
.....

ILLINOIS STATE MEDICAL SOCIETY,
c/o Cashier, Sheridan Trust and Savings Bank,
4738 Broadway, Chicago, Ill.

Below is a list of subscribers from Chicago and Cook County to the Lay Educational Fund as per letter sent physicians early in April soliciting funds and cooperation.

CHICAGO AND COOK COUNTY SUBSCRIBERS

COOK COUNTY

L. H. Abele, Chicago
Frank W. Allen, Chicago
Thos. D. Allen, Chicago
W. G. Alexander, Evanston
Geo. C. Amerson, Chicago
E. B. Anderson, Chicago
A. M. Barothy, Chicago
H. R. Baumgarth, Chicago
Geo. E. Baxter, Chicago
F. J. Berger, Chicago
F. A. Berry, Chicago
James G. Perry, Chicago
Frank Billings, Chicago
M. L. Blatt, Chicago
Warren Blim, Chicago Heights
D. F. Brawley, Chicago
Frank L. Brown, Chicago
W. L. Calloway, Chicago
R. G. Collins, Chicago
E. W. Crass, Chicago
Frank Deacon, Chicago
Frank H. Deane, Berwyn
E. A. Degenhardt, Chicago
Jos. B. DeLee, Chicago
O. J. Dewitz, Chicago
J. A. Dittmore, Chicago
E. J. Doering, Jr. (Chicago Medical Society Bulletin), Chicago
C. A. Earle, Des Plaines

A. O. Ellison, Chicago
N. R. Engels, Chicago
R. R. Ferguson, Chicago
Anders Frich, Chicago
Geo. Galloway, Chicago
Lester E. Garrison, Chicago
I. C. Gary, Chicago
C. O. Getty, Chicago
John Phillip Gibbs, Chicago
Sol M. Goldberger, Chicago
Philip Gottlieb, Chicago
H. V. Gould, Chicago
R. E. Graves, Chicago
E. A. Gray, Chicago
Herbert W. Gray, Chicago
G. W. Green, Chicago
L. L. Gregory, Chicago
L. Grotowski, Chicago
C. A. Haines, Chicago
F. E. Haines, Chicago
R. L. Halcombe, Chicago
F. P. Hammond, Chicago
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J. T. Hart, Chicago
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Frank F. Hoffman, Chicago
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M. J. Hubeny, Chicago
R. M. Hutchison, Chicago
J. H. Hutton, Chicago
H. E. Irish, Chicago
Ernest A. Irons, Chicago
Warren Johnson, Chicago
L. B. Joslyn, Maywood
W. L. Kacin, Chicago
M. O. Kagy, Chicago
Emmet Keating, Chicago
Roh't C. King, Chicago
H. H. Kleinpell, Chicago
John M. Krasa, Chicago
Geo. B. Lake, Chicago
Geo. R. Leonard, Chicago
Edmund D. Levisohn, Chicago
Edward Luehr, Chicago
Paul T. Lyon, Chicago
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L. Maywit, Chicago
L. L. McArthur, Chicago
M. McGowan, Chicago
Wm. D. McNally, Chicago
Nels C. Meling, Chicago
W. B. Metcalf, Chicago
G. A. Miller, Chicago
C. L. Mix, Chicago
W. E. Morgan, Chicago

E. W. Mueller, Chicago
J. F. O'Hara, Chicago
A. B. Oyen, Chicago
Edward Patera, Chicago
Fred A. Patton, Glencoe
M. Penchina, Chicago
W. A. Plice, Chicago
C. M. Pohl, Chicago
R. R. Ferguson, Chicago
Emil Ries, Chicago
M. M. Ritter, Chicago
C. C. Rogers, Chicago

Lawrence Ryan, Chicago
Alvah Sawyer, Chicago
Chas. P. Schell, Chicago
Chas. L. Schmidt, Chicago
C. L. Schmidt, Chicago
Henry Schmitz, Chicago
C. O. Schneider, Chicago
C. B. Semerak, Chicago
V. L. Sheets, Chicago
E. W. Smith, Chicago
Robert Sonnenschein, Chicago
Wm. G. Stearns, Chicago

J. G. Stromberg, Chicago
Theo Tiekens, Chicago
Max Tboresk, Chicago
I. Harrison Tumpeer, Chicago
V. R. Vanstone, Chicago
J. H. Walsh, Chicago
C. J. Whalen, Chicago
T. J. Williams, Evanston
G. V. Wyland, Chicago
Adam Yuska, Chicago
H. Zaczek, Chicago

DOWN STATE SUBSCRIBERS TO THE LAY EDUCATIONAL CAMPAIGN FUND

Frank P. Auld, Shelbyville
O. F. Barnes, Arcola
J. G. Barnhizer, Forrest
C. E. Beecher, Gilson
C. Bennett, Champaign
R. M. Binney, Granite City, Ill.
C. Blum, Crete
T. V. Boyd, E. St. Louis
Earl Brennan, E. St. Louis
A. L. Brittin, Athens
E. L. Brown, Bloomington
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J. R. Bryant, West Point
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John O. Cletcher, Tuscola
E. P. Coleman, Canton
J. E. and E. P. Coleman, Canton
H. I. Conn, Newman
Wm. Cooley, Peoria
J. F. Cooper, Peoria
F. J. Coughlin, Aurora
R. H. Craig, Charleston
W. L. Crawford, Rockford
O. H. Crist, Danville
O. J. Culbertson, East St. Louis
A. B. Curry, Decatur
J. C. Dallenbach, Champaign
W. A. Dew, Belleville
A. E. Diller, Aurora
A. B. Dudley, Charleston
F. M. Edwards, Centralia
A. G. Everhart, Peru
J. Henry Fowler, East Moline
T. O. Freeman, Mattoon
J. W. Geiger, La Salle

C. W. Goddard, Harvard
W. F. Grinstead, Cairo
Andy Hall, Mt. Vernon
F. C. Hammitt, Hanna City
L. A. Harney, East St. Louis
J. M. Hayes, Decatur
H. G. Horstman, Murphysboro
Geo. Hoffman, Chester
G. H. Hoffman, Kewanee
W. D. Hohmann, Kewanee
H. C. Houser, Westfield
A. E. Hubbard, Peoria
W. L. Irwin, Plymouth
Johnson Clinic, Rockford
Solomon Jones, Danville
C. R. Kerr, Chenoa
R. P. Kile, Rockford
Tom Kirkwood, Lawrenceville
A. A. Knapp, Peoria
L. C. Knight, Carthage
F. J. Kotalik, Sherrard
L. J. Linder, East St. Louis
Marion County Medical Society
O. F. Maxon, Springfield
W. H. Mercer, Taylorville
B. V. McClanahan, Galesburg
J. E. McCorvie, Peoria
McDonough County Medical Society
J. C. McMillan, New Berlin
R. C. McMillan, Monmouth
John J. McShane, Springfield
E. E. Melugin, Thomson
Glenn E. Mersbon, Mt. Carroll
J. E. Miller, Quincy
R. E. Miltenberger, Spring Valley
E. B. Montgomery, Quincy
J. R. Neal, Springfield
F. J. Otis, Moline

G. C. Otrich, Belleville
Geo. Thos. Palmer, Springfield
Arthur Parsons, Geneseo
Drs. Patton and Blair, Monmouth
Mather Pfeifferberger, Atton
L. S. Reavley, Sterling
Henry Reis, Belleville
J. J. Rendelman, Cairo
D. C. Roach, Burlington
W. R. Roberts, Cissna Park
Mary L. Rosensteel, Freeport
Mary A. Sagner, Thomson
A. M. Shaw, Adrian
E. Grant Simpson, Naperville
C. S. Skaggs, East St. Louis
Karl Snyder, Freeport
John Huston Spyker, Decatur
O. O. Stanley, Decatur
A. F. Stotts, Galesburg
C. D. Swickard, Charleston
H. R. Sword, Milledgeville
R. Tharp, East St. Louis
G. Taphorn, Atton
Chas. D. Thomas, Peoria
T. H. Trainor, Maple Park
Edward Tripple, O'Fallon
Oscar W. Tulisalo, Rockford
H. M. Voris, East St. Louis
T. H. Wagner, Joliet
Geo. A. Wash, Gibson City
L. J. Weir, Marshall
Whiteside County Medical Society
R. R. Whiteside, Moline
E. C. Williams, Downs
A. A. Wilson, Davis
L. H. Wiman, LaMoille
Geo. H. Woodruff, Joliet

Correspondence

LAY EDUCATION MAKES A HIT

Ottawa, Ill., May 1, 1925.

Miss B. C. Keller,
25 East Washington Street,
Chicago, Illinois.
Dear Miss Keller:

You may not have heard from Mrs. Lockwood regarding the public meeting held in Sandwich, Monday evening, April 27. There was quite a good turnout at the City Hall, perhaps a hundred or a hundred and fifty people present, and they all appeared to be quite interested.

At the meeting of the La Salle County Medical Society, Tuesday, it was voted that each member be assessed ten dollars for the lay education work. Personally, I think this is great stuff and that you are certainly accomplishing results.

You will remember that several months ago when I was in Chicago I mentioned the fact that Dr. East's clinics were to be discontinued

after January 1. You may be interested to know that Dr. East has held two clinics at the Ryburn Memorial Hospital since January 1.

Yours truly,

R. T. PETTIT, M.D.

COUNTY HEALTH OFFICERS

Belvidere, Ill., January 18, 1925.

Dr. Don Deal,
Springfield, Ill.

Dear Doctor: I understand there is to be a bill introduced in the Legislature to establish a County Health Officer for each county in Illinois. Personally, I cannot see the need of such an officer—at least, not in Boone County. Is not a State Health Officer available at short notice, were his services needed? Is not the general health of each county well looked after, under the present system? Are people dying for the lack of medical attention, and is the sanitation in such a deplorable condition that epidemics are constantly breaking out? Are not the County Supervisors doing their work as to relief? I

wish to add just here that I have not received one cent from Boone County Supervisors for medical services for ten years. I can see a lot of trouble for the doctor who is doing honest work for his people, as soon as a Government official takes the field. The best and only true health center, or officer, is the office of an honest doctor and the service he renders to his people.

To me it is strange that the lawless American communities are in such a condition that they need more, and still more, supervision and government—especially the doctor. If one out of every ten persons is now in a Government office of some kind, we must indeed be a bad lot—the laity as well as the professions. To my notion, we are now overgoverned. The multitude of laws only breeds contempt for law.

I have not heard of a case of medical neglect in Boone County during twenty-six years of active work here, nor have we had epidemics of any kinds that were not handled in the most approved and scientific manner. I will go out and work for a law that will make every candidate for a legislative office pass a good examination in biology—that they may have some idea of the real need of legislation and where to apply it. Biologically, the average politician would rank with Protozoa—the way I view them. I wonder what percentage of them in the Legislative halls of the State of Illinois could show a high school education—not more than ten per cent, I'll bet.

With Volstead, Narcotic Laws, Insurance Papers, School Certificates, reports to Board of Health, and so on—every time we turn around, we must report. A doctor, with any kind of work, must needs have someone to do the reporting. After all of that, the Learned Legislator thinks it necessary to hamper the only honest, hard working, sacrificing servant of the public with still another swivel chair, or golf playing supervisor.

Doctor, in your experience, how many politicians have you seen who have had any idea of what they were trying to do—say nothing about an ideal. I asked one a short time ago why he voted for a certain bill. His answer was: "Well, we have to please the women, and when the wind is in the north you cannot stop it." That answer, I believe, will in the majority of cases be considered sufficient and valid in most instances by the politician.

Doctor, in your long acquaintance with the medical profession, do you believe them to be a bunch of crooked hoodlums, who need the supervision of a gang of political high-jackers, who make us walk the plank for the purpose of keeping themselves in office?

Are there not sufficient laws to keep us within the ethical code of morality, and agents to enforce them, without additional restraint being added and new rules made?

A politician is no less a politician because he has been appointed, rather than elected, so let us look for a moment at page 344 under the caption of "New Notes" in a pamphlet entitled "Illinois Health News." We find "A Correspondence Course of Instruction for Prospective Mothers Is Contemplated"—let us hope it is only "contemplated." That idea bears all the finger prints of a childless female—the eternal urge of the less intellectual and, therefore, less efficient mind, coupled with the overwhelming desire (because of a realization of that deficiency) to attract attention to themselves and hold a political position—exploiting their works is one of the glaring weaknesses of human beings.

Why take from the people their own opportunity for progress, that is, the power of self government, the ability to think for themselves, and make them slaves subjected to a centralized government with a spy and police system to rule?

Isn't it strange, doctor, how, when a few females are gathered together in the name of bridge, cross-word puzzle, or what not, a committee must be formed to promote pet legislation to wait upon the legislator and importune him to support their most important bill for the furthering of the welfare of the so-called "poorer classes," or to restrict the doctor in his work among them, to discuss social evils and morals in general of everyone from the President down.

Suppose, now, Mrs. A. elects to take the correspondence course. Suppose after the baby is born it gets sick and a doctor is called. This young mother who has had this course will think she is in possession of a fund of knowledge sufficiently great and authentic to warrant her in acting as a consultant in the case of her child. It will make no difference if the doctor called is an expert in pediatrics; has not this mother the swivel chair authority of a State Doctor, who has never seen the case?

While the people do not know what they are

voting for, and if they did, they would not get it, yet they do believe the State is ultimate authority. In the article about Young Mothers' Clubs, we are fed the sop that the young mothers are urged to have frequent examinations of their babes by the doctor—I wonder if these advocates of State Medicine think we are blind. I know if I were called to treat a baby and was confronted with any arguments as to its treatment, founded upon the authority of a correspondence course, I would depart at once from the case with all my belongings, as well as interest in the welfare of the child.

One could multiply the possible and probable detrimental circumstances that would likely arise many times over. It appears that the medical profession is about to be Russianized by ignorant, designing, wire pulling political propagandists working upon the more ignorant politician. Let those of us who desire it get our mess kits and stand in line for our soup. Those who wish, as scientists, to do the best we can for the people, who wish to learn and serve and make an honest living, take our dog sleds and start for Siberia.

Probably all of this tires you, doctor, but it is the expression of one of the more or less scorned—not only by the laity, but by his own profession—general practitioners in the field, who, nevertheless, has as a rule to do first handed with the problems of the health of the people.

Respectfully,

ALDEN ALGUIRE, President,
Boone County Medical Society.

LITERARY TASTE OF PATIENTS IS TOLD

ST. LUKE'S LIBRARIAN PUTS BAN ON THRILLERS

The literary taste of hospital patients has been analyzed in a report by Ruth Schmeisler, librarian at St. Luke's hospital, made public today.

Contrary to popular opinion, Miss Schmeisler finds patients in the shadow of death, instead of fortifying their faith by reading the scriptures or religious writings, prefer to follow their own bent in literature, and read the kind of books in which they are most interested.

The tastes of the men, she remarks, is, as a rule, rather higher than that of the women. The former prefer western tales, humor and stories dealing with adventure and the outdoors, while the latter seek entertainment in love stories.

Poe, though often requested, is prescribed as being overstimulating, especially to patients with weak hearts. Anna Katherine Green, Arthur B. Reeve

and others of the thrill school, likewise are barred from the shelves.

"We diet the reading as we do the food," says the librarian. "Nurses always are consulted before the patient is allowed to have books. Detective stories and books that savor of excitement are excluded from the literary diet of our patients."

Zane Grey, James Oliver Curwood, Booth Tarkington, Henry Kittell Webster and George Barr McCutcheon are always in demand, and are considered wholesome. Magazines like *Judge* and *Life* are worn out passing from bed to bed. Technical and geographical magazines are popular.

(From Chicago, Ill., Post, April 3, 1925.)

THE MENACE OF INTESTINAL TOXEMIA

Intestinal toxemia early leads to derangement of the metabolism, with poisoning, sooner or later, of the body cells and functional disturbance throughout the organism. It is easy to see, therefore, how various organic diseases may take their origin from toxins generated in the bowels, and it is mainly, if not entirely, on account of neglected habitual constipation that chronic diseases develop and progress.

If many chronic ailments are to be avoided or postponed as the years multiply, and the health of the average person is to be safeguarded and promoted, then it is of the utmost importance that regular and free evacuation of the bowel contents should be assured with requisite frequency. In attaining this object no remedial measure offers more satisfactory results than the administration of Agarol, a well-balanced combination of pure mineral oil, agar-agar and phenolphthalein. This fact has been conclusively proven and clinical experience has shown that Agarol provides a rational and dependable means of combating and overcoming constipation.

It mixes with the feces, renders them soft and plastic, and by supplying the necessary lubrication of both the intestinal canal and the bowel contents, makes their passage easy, and thus assures free and regular emptying of the lower bowel without straining or discomfort.

Of the countless laxatives or evacuates available today, there is none that will be found so satisfactory from every standpoint as Agarol. Acting solely in a physiologic way, it produces free and easy movements which can be relied on not only to prevent the development of hernia, hemorrhoids and other physical defects, but what is of especial importance it substantially aids in the elimination of the toxic products which have been shown to play so conspicuous a part in the causation of many chronic ailments.

THE CASH VALUE OF A COLLEGE EDUCATION

The cash value of a college education to its possessor is \$72,000, according to a report based on a long study of the earning capacity of college graduates. The cash value of a high school education is placed by the report at \$33,000.

Original Articles

MORBID ATTITUDES AND BELIEFS*

C. MACFIE CAMPBELL, M. D.

Professor of Psychiatry, Harvard University School of Medicine

BOSTON, MASS.

The program of the present meeting is an interesting document covering a wide field of intensive medical study. To the reader, passing abruptly from joints to hearts, from inflammation to metabolism, it comes as a shock to find a paper on "Morbid Attitudes and Beliefs" sandwiched in between one on anomalous peritoneal bands and another on transplantation of the ovary. He may wonder whether the paper has been inadvertently misplaced, or whether it is perhaps an intentional transplant.

Transplants have the best chance of thriving where there is an actual organic need of the special tissue and this paper, if viable, will perhaps indicate that the contribution of psychiatry is an organic need of modern medicine. The presence of the paper on the program is a healthy sign, even though the presentation of the topic may be far from adequate.

Peritoneal bands and transplanted ovaries are tangible and visible; attitudes and beliefs seem to many elusive and nebulous. Mental attitudes and beliefs, however, are just as solid facts as structural anomalies; we have a more immediate knowledge of their existence than of our anatomical peculiarities; the extent to which morbid attitudes and beliefs cripple and distort the individual life is considerable. Some might consider that the topic belongs more to the philosopher or the moralist than to the physician; but attitudes and beliefs are to be looked on as one aspect of the adaptation of the individual to the environment. So long as medicine retains an interest in the individual as a whole, and in his adaptation to the environment, it will study the laws underlying the formation of morbid attitudes and beliefs, it will be interested in their treatment and prevention.

The attitudes and beliefs of an individual are the individual himself as he reacts to the more complex aspects of the environment; they can only be understood when we study the personality

in its complexity and the situation which it has to deal with.

In internal medicine we consider the adaptation of the individual to the environment in so far as it involves physical, biochemical, bacteriological factors, an adaptation in which the chemical and nervous integration of the various systems plays an important rôle. There are, however, other demands made upon the human organism than the ability to assimilate nutritive material, to ward off micro-organisms, to dominate the physical environment in varied climes and under the most diverse circumstances. Man has to adapt himself to the conditions of social life; he has to establish some sort of harmony between the conflicting tendencies of his own nature. Primitive appetites conflict with cultural demands; day-dreaming and phantasy conflict with objective observation and logical thought; development of the personality is subtly modified by the influence of parents, siblings, spouse, children; association with others in school and work may involve difficulties of various types; each man with his own special abilities and disabilities has his own destiny, which may include bereavement, loss, disappointment, unsatisfied desires. In face of these demands many resort to evasive and inferior modes of adaptation, and under the influence of emotional needs distorted and phantastic beliefs may arise.

The origin of a distorted attitude may frequently be traced to influences or experiences in childhood; this is especially true in regard to the attitude towards sex and all its ramifications, and the literature of the last twenty years has furnished an ample case material dealing with this topic. In this case material we see how the early promptings of the sex instinct and the experiences of the child are important factors in the moulding of the personality; early success or failure in relation to the assimilation of this factor may have a profound influence on later adaptation; undesirable experiences may result in an acquired immunity or an unfortunate sensitization. Early influences frequently tend to associate the topic of sex with a feeling of impurity, contamination, guilt, inferiority, and there accumulates a reservoir of distressing emotion, which hampers the free development of the personality. The chronic discomfort arising from this source may be neutralized by

*Read before the Inter-State Post-Graduate Assembly of America, Milwaukee, Wisconsin, October 31, 1924.

the individual in various ways. Thus the disturbing feeling of impurity may be balanced by an exaggerated attention to physical cleanliness; as a patient said, "after a bath I appear better in my own eyes, I feel fresh, it is something symbolic." Or the individual, to get away from what is of the senses and animal, may strain after undue intellectual activity and devote much time to rather unproductive speculation. Religiosity and artistic dilettantism may have their source in the same blind effort to extract the sting from nature's promptings. The young man who derived satisfaction from the symbolic value of the bath was devoting himself to a career in philosophy. Another man, of homosexual tendency, was also a student of philosophy, an idealist; his dissertation had been on a phase of idealism, "I am idealistic, submit everything to the highest standards." When his sex nature was stirred by a young companion, he gave a high mystical value to this emotional turmoil of familiar biological origin. "I felt that Spirit could conquer anything—I dwelt in pure contemplation, in contemplation of pure goodness—in rapture—in contemplation of the good he could do." Prudishness is one of the most familiar attitudes of defense and self-deception in face of the dangers that assail from within. The feeling of inferiority which results from the unequal struggle of the immature individual with the powerful racial instincts may leave a deep imprint on his adult personality; undue sensitiveness and seclusiveness, unhealthy day-dreaming, self-deception may neutralize the efficiency of an otherwise rich endowment and render the individual peculiarly vulnerable to some of the inevitable shocks of life. On this soil the psychoneuroses flourish and every specialist, medical and surgical, sees many invalids whose handicap owes something to these factors. In many cases later difficulty would have been prevented if the child had been helped to a healthy understanding of the simple problems of human nature, and had not been left to muddle along blindly in relation to a major issue of life.

Of fundamental importance in determining the later attitude of the individual towards fellow workers and the social group, towards those in authority in various fields, towards the problem of mating is the relationship between child and parents. The attitude of the spoiled child

is familiar; accustomed to obtain satisfaction in the family circle by tantrums and other forms of self-assertion, he is ill prepared to deal later with a world, which does not accept his claims. A robust constitution may, after a trying period, submit to the discipline which has been unfortunately postponed; a less fortunate endowment, chilled by the encounter with an apparently harsh and unsympathetic world, may cling to a feeling of its intrinsic superiority, and see in the behavior of others evidence of crudeness, lack of sympathy, antagonism or jealousy.

There are other ways of spoiling a child than by oversolicitude and lack of discipline; he may be spoiled by too much repression. The feeling of inferiority originally developed by a dominant and intolerant parent, may become a permanent attitude of the adult personality, and seriously influence important decisions.

The influence of the parent is however much more subtle than what is expressed in home discipline. The whole scheme of emotional values adopted by the parents and expressed in their daily behaviour affects the growing child and moulds his outlook on life; the child tends to see with the eyes of the parent; his affections are deeply involved in their personality. The individual frequently does not realize that he has carried on into adult life an attitude of childhood, that he is still haunted by memories of the particular emotional dependence of that period, that he still reaches out for something which will duplicate the old relationship. It is especially in relation to mating that the influence of this attitude may be traced. Some never marry because life with the parent or with the memory of the parent satisfies their needs; others tend to marry someone who in personality or in some more superficial way recalls the parent, even although the match may obviously be most undesirable. Thus the young daughter of an alcoholic may marry an elderly alcoholic. In other cases even a suitable match may be a sad failure owing to the persistence of the childhood attitude, the obscure basis of much incompatibility, of depression, disappointment, resentment, physical invalidism. The individual himself may have little understanding of the unrest which periodically assails him, and which may express itself in odd moods or in some disorder of conduct. Thus in a married man with waves of depression and episodic al-

coholism, the instability in his emotional life and his lack of complete satisfaction in his marriage seemed to be largely due to his unusually intimate relations with his mother, whom in the late teens he had nursed and from whom at twenty his aunt undertook to wean him. The same deep affection for a dead father seemed to be a disturbing factor in the case of a young woman of twenty-seven; under the spell of his memory the ordinary affection of others seemed to her unsatisfactory, the suggestion of a proposal would terminate a friendship. Hampered by her own inner difficulties, she preferred to see the fault elsewhere and felt that the world was abusing her.

The attitude towards the parent carried over from childhood into adult life may be one not of affectionate dependence but of antagonism and this antagonism may express itself in many fields. One may find the individual, with a history of early difficulty with the parent, disinclined as an adult to accept dogma, heterodox in religion, radical in politics, restive under any display of authority. He may pride himself on his exaggerated individualism, not realizing that it is the residual of a childhood attitude, which may long since have ceased to be appropriate.

While the parent as a restrictive force may call out in the child certain important reactions such as the above, the parent is not immune from the dangers of the situation. Not content to live his own life, the parent is liable to encroach on the next generation, wishing unconsciously to relive his life in the life of the child. He thus may avoid his own early faults, have pleasures denied in his own youth, develop vicariously talents which he has always felt were never given a fair chance. The parent without academic training is too apt to insist that his son must have a college education; the self-made man may wish his son to have without effort those things he himself struggled for; the mother, sensitive as to past experiences, may too anxiously guide her daughter past difficulties, which are given undue importance. This attitude towards the life of the child plays an important rôle in the adaptation of many parents. They do not always realize that they are living the life of another person, and that their own individual life is being seriously narrowed; when the child leaves the home for his or her own

independent career, the parent may pass through a period of morbid depression.

A woman of meagre education who had married a college graduate was living an apparently stable life, compensating for early indiscretions by religious devotion, and for her own lack of education by the college education of her daughter. To a large extent she was reliving her own life in the life of her daughter. When the daughter frankly accepted Darwinian theories, and made the mother realize that she was an independent being with her own life to lead, the mother had a severe reaction; in her acute need she reached out for comforting religious beliefs, felt she was specially inspired by God, and under this belief carried out peculiar symbolic activity.

It would be easy to give further examples of the disturbing effect on the mother's balance of a daughter's emancipation, either through marriage or some declaration of independence similar to the above. It is true that in many cases even marriage may not modify the attitude of the parent, who continues to demand from the married child the same emotional relationship which has previously existed. Thus the attitude of the parent based on her personal needs may go far to spoil the new situation and in the resultant triangular situation any one of the three members may show the strain by symptoms of the most varied nature; these symptoms are apt to be treated superficially, with no realization of the fact that their roots lie in complicated mental attitudes.

The examples of morbid attitudes so far given have touched the problems of sex and of family adaptation. The wider problems of social adaptation, if not solved satisfactorily, may also give rise to morbid attitudes, thus handicapping personal development, and even laying the basis for later nervous and mental disorder. In our relations with our fellows a feeling of inferiority may develop, just as it may in relation to the control of the appetites. The feeling of inferiority may express itself directly in a timid, self-distrustful attitude, or it may give rise to a surface attitude of quite the reverse type; thus many a rather assertive, aggressive individual who is by this behaviour arousing antagonism, is really attempting to compensate for a feeling of inferiority. The reaction may lead to serious anti-social conduct; a very efficient burglar was

found on arrest to be a school-boy whose daring escapades had no motive of ordinary gain behind them, but were a compensation for a feeling of inferiority due to a physical handicap which made him the butt of his schoolmates. It is always well to keep this possibility in mind, when dealing with perplexing wayward behaviour. The feeling of inferiority may arise in relation to any of those qualities which are of value in social life. The love of self, the tendency to self-assertion, the desire of the various amenities of life make each one of us, in greater or less degree, sensitive to any defect in our equipment and to our position in relation to our fellows. From an early age and in many ways each one may feel himself handicapped in the race with his fellows. The child may have some physical handicap, a deformity, a limp, a speech defect, some variation from the normal in his appearance; he may have less money to spend than his fellows; he may belong to a racial or religious group that is treated with little consideration; he may be rather dull mentally, or clumsy physically, or unduly timid and sensitive to pain.

The feeling of inferiority need not be crippling; in many a personality it furnishes a stimulus to extra effort and is a spur to the vigorous pursuit of power, of wealth, of holiness, of abstract truth. It is not always the best endowed or those most favored by circumstances who achieve the greatest success.

Instead of finding some satisfying external activity to compensate for our special handicaps, we may seek comfort in a subjective way, which leaves the actual situation unchanged but makes it more tolerable to us. If devoid of social graces, we may talk slightly of "the dancing man"; if we have brains, but no brawn, we decry athletics; if dull intellectually we refer with mild amusement to the "high-brow" and the pundit; if routine clinicians, unable to carry out keenly an experimental investigation, we may make light of research; if temperamentally unable to deal with the raw material of suffering humanity in the wards, we seclude ourselves in the laboratory and talk with condescension of the "mere clinician"; if we have little of the milk of human kindness, we belittle the kindly practical philanthropist, call him an "uplifter"; if we are sentimental enthusiasts living on facile emotions, we may do scant justice to those care-

ful workers, who realize that social progress is a matter of slow evolution. The man who has no merriment in his soul refers to the innocent hilarity of others as the "crackling of thorns under a pot". This morbid attitude of self-satisfaction and depreciation of others may be partly of individual and partly of social origin; considerations of caste are still potent forces, objectivity is not always fostered by the atmosphere of the family, the social group, the school, the college. Patriotism and chauvinism are apt to be confused; to see the defects of one's own group and the merits of one's rivals is by some considered to be a moral blemish. It is not always realized that there is a sounder basis for truthfulness and honesty than the fact that one is a Smythe or a De Vere, and that to base the claims of virtue on an appeal to caste feeling has drawbacks. It must be recognized that a great variety of social groups derive comfort from the assumed inferiority of those whose tastes and customs and ethics differ from their own; the group mind is not immune from morbid attitudes and it is difficult for the individual to emancipate himself from the group bias.

While thought may thus pander to our prejudices at the expense of our fellows, on the other hand it may bring comfort and may foster cheerful acceptance of hardships and loyal social cooperation. In virtue of the magical quality of thought, directed by subjective cravings rather than by objective observation and logical elaboration, man may see the otherwise intolerable reality as merely a trifling detail in the foreground of a picture of the universe, painted with the colours of his desires. Thus envisaged and transformed, a world of barren force and hateful inequality fades away, and in its place appears a spiritual world, in which the rôle of the individual is of transcendent importance. A religious or philosophical solution of personal difficulties may transform an embittered or crippled individual into a useful member of the social group. For such a result the religious solution must not be too individual, it must conform to the general lines of an already existing creed or, if novel, it must make a sufficient appeal to the needs of others to be acceptable to more than merely a few extremists.

In many individuals thought, directed by underlying wishes, fails to attain this socially acceptable form and through this failure the in-

dividual is left isolated, with a barren system of beliefs which offers him no bridge over his personal difficulties to a working social adjustment. Because these beliefs are so individual and leave him isolated, they are considered by his fellows to be morbid, although they may intrinsically be no more illogical nor irrational than many widely accepted beliefs. They are simply the indication of a deep-seated difficulty of adaptation, and like so many other so-called symptoms of disease they are nature's attempt at cure.

The importance of the analysis of morbid beliefs varies very much in different cases. In some cases they may be of rather incidental interest, throwing light it is true on underlying trends of the personality, but not having much to do with the real onset of the disorder. Thus a man of 47, who had shown periods of over-activity and under-activity, during convalescence from pneumonia claimed that he had millions, boasted of a wonderful voice, said that he would make an excellent President of the United States. Such beliefs are sufficiently close to the normal over-estimation of self not to present any great difficulty of interpretation; in this case they were able to come to naive expression thanks to the influence of the physical ailment on the highest functions. Such disclosure of the furniture of our mind is most familiar perhaps in acute alcoholism—*in vino veritas*—but it may be elicited by any other factor which disturbs the higher integrations, e. g. an anesthetic, an infectious disorder, emotional turmoil. Much of interest in human nature is revealed by the ideas, which flit over the stage in the delirium incidental to many physical disorders; thus the claim to be Christ is met with very frequently as a fleeting idea in many disorders, and shows that a messianic ambition is more widely diffused than would be indicated by the few patients, in the fabric of whose beliefs a fixed delusion of being Christ is a central factor. Ideas of spiritualistic nature are toyed with by many people in whose mental life they are more or less of a luxury, an idle distraction, or a pleasant stimulant; the same ideas may be called on seriously to satisfy the deep-seated needs of others, bereft or thwarted, who have not had the good fortune to find a more wholesome solution of their problems. Unfortunately those, who dabble freely in such beliefs for the sake of the pleasant stimulation they receive therefrom, do not realize

that they are by their attitude encouraging the use of these stimulants in others of less robust mental constitution, whose balance may thereby be seriously upset.

The following case is cited to show how thought may prove the servant of desire, and may elaborate products which are individual and eccentric and which may interfere with healthy social adaptation. The patient, a man of 52, had received a meagre education on account of deafness in childhood; poorly educated, deaf, ungainly, he reacted to these limitations in a vigorous way. He used big words, engaged in pretentious reading, studied medicine and phrenology; he wrote a book of fiction (unpublished) "How the Matrimonial Agency Failed", a poem "Basic Aims", and in a third book he dealt with such major problems as War, Morality, Sex Distinctions. He attempted somewhat late in life to compensate for his social uncouthness by taking dancing lessons, he had to hire his partners; he found that nobody "developed his steps logically", nobody could keep up with him, he was the fastest dancer in the world. An excellent craftsman he patented some toys, the last of which was an ingenious "fire-lighter"; his self-esteem was much heightened by the consideration that this "fire-lighter" might be used for arson on a large scale. His advertisement said "it may be used to carry on an effective warfare against society without danger to one's self. It is the only morally effective instrument which a man can have and is very important in the struggle against greed and the exploitation of the masses." Such an attitude while comforting to the patient was evidently very unfortunate from the point of view of social adaptation, and could hardly be considered a solution of his personal problem compatible with an unsupervised social existence.

Another patient showed a similar development of rather pretentious claims, but without the same ominous trend to his views. He also was deaf, had been invalided for tuberculosis; during a brief fast he had felt particularly buoyant; he read some physiology, and on this flimsy basis he published a pamphlet "Health for All, Explaining the Principles of Nutrics and Vitamin (This Book guarantees cure in Any Non-epidemic Disease And Assures to You Long Life in Health by Easy Method)." How often does one read in current medical literature commu-

nications, of which the basis is only slightly more substantial than that of the above pamphlet, and the explanation of which is to be sought in the psychology of the author! The patient had felt dissatisfied with himself in relation to the sexual problem; this manifested itself in undue suspicion of the morality of his sister, and in the desire to guide and improve others. This had inspired two pamphlets "The Life Guiding Facts About Love, Courtship and Marriage", "The Married and Those Who Marry Take Heed."

In the cases above discussed the influence of underlying emotional factors upon overt attitudes and conscious beliefs has been shown, but the structure of the patient's thought is still logical, the physician has little difficulty in thinking himself into the patient's point of view.

One of the most fascinating studies is that of the attitudes and beliefs of those who are not only disturbed by deep-seated trends, but whose ideas are no longer expressed at the level of adult logical thought. In such cases there crop up attitudes and beliefs, not cast in logical mould nor easily comprehended by normal minds; they are apt to be considered as the random fragments of a broken vase, scarcely worth intensive study. The close scrutiny of these beliefs suggests that we may be dealing with no random fragments but with modes of thought, which at one period were primitive man's reaction to experience, and which have long since been superseded by our more efficient modern mental processes. The ideas of our patients have close kinship with the modes of thought of childhood and of primitive man, and their emergence during a mental disorder shows how there slumber beneath the surface of modern consciousness all sorts of primitive mental creatures, which once roamed freely across the surface. An unmarried woman, who had for several years fought a losing battle against the rising tide of her discontent, at last took refuge in the hospital. One may refer to a few of her utterances: "If I marry just the right man, everything will be all right; if not, the end of the world will be the ice age, all cold"; here we see no separation of man from inanimate nature, but one process which sweeps through all, and the chill of her own future may just as well be expressed in the wider setting of the ice age, as in reference to the narrow personal part of the total experience.

The same lack of any division between psychical and physical forces is again seen in the following: "What can we do to bring back the sun? It is gone. I must keep the sun going. If I am higher up on the fifth floor of a building I can call back the sun. When I was in the bath my spirit went out to many worlds. The sun is life." "The sky changes with my mood; when my mood is blue the day is dark." "When I went to the sun parlor the sky became dark as though the atmosphere were in opposition to me." "Harmony must be established between the stars.—I thought matter was alive. I thought planets were jealous like human beings." Nature, fellow-patients, animals, herself, all seem penetrated by occult forces; "I must go to the toilet, for if I don't the girl over there will die"; another patient who disrobed entirely was referred to thus, "I felt as if the girl opposite was the spirit of the earth, and as if she were trying to ally herself with me by strange ways." "We are related to nature in a much more close way than we think." At a later period as she looked back on this mode of experience from the vantage ground of improved health she said, "I thought everything was animated; the animals have a spirit, they understood us. I felt a great kinship between the animated world and myself. I looked at the horses in the bridle path and they seemed to prance. Perhaps it was only by accident, but I like to think it was true." In the upheaval of the patient's nature the creative force, which had been denied expression in real life, now expressed itself through the medium of phantasies of varied nature. Thus certain shadows seemed to confirm the vague annunciations from the depths of her nature; "I think that they meant to say that in me the perfect man was not completed yet; in me the Father and perhaps the Son, as I was willing to sacrifice myself, but that knowledge or perhaps love—I don't mean passion but more general love; charity was a child in me." The symbolic expression of her creative yearnings is again seen in the following account of her breakfast; "there was an egg wrapped in a napkin, a dark red rose partly faded, some cereal, I can't remember, some coffee. I thought I should not eat the egg, as if it were a symbol, as if it contained the germ of life and the rose the symbol of passion. The cereals were as bread, the symbol of food. I took the rose, the sun was shining very brightly,

and it was a strange thing that when I took it in my hand it stood as a fresh rose. *It was as if I were all penetrated by the power of giving life to things.*" Again she said "in me I thought there was the embryo of the complete man."

The above examples may serve to show that morbid attitudes and morbid beliefs, whether expressed in logical or more primitive form, are merely an indication of the difficulty of the individual, with his own special endowment and past experiences, in adapting himself to the situation which confronts him. In face of these symptoms, which he has been accustomed to consider as nebulous and bordering on the metaphysical, the physician is tempted to resort to physiological hypotheses, often of very doubtful validity. The present communication would encourage him to realize that he can help his patients, if he remain on a sound biological basis, and be willing to take an interest in actual human nature, its past evolution, its present conflicts. The general practitioner, who is sufficiently interested to give to his patient the time necessary for the study of the real life difficulties of the latter, may be surprised to find how greatly the sphere of his usefulness to the community has been extended.

THE STORY OF PNEUMONIA WITH AN APPARENTLY SUCCESSFUL TREATMENT. COLD THE CHIEF EXCITING CAUSE

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In a study of lobar pneumonia it is interesting to bridge that great expanse of time stretching across a period of many ages to the early days of the world in an effort to ascertain the extent of primeval men's knowledge concerning this most fatal of all acute diseases, and measure their achievements when combating its incursions on human life. Did primitive men keep records of their observations in their study of diseases, and what degree of success did they attain with their often necessarily crude armamentarium? Can the speculative mind discover testimony demonstrating that the first men recognized the value of preventive medicine as associated with this and allied diseases? Let us together view this prospect of man's first struggles against disease and learn if we can how much farther we have

advanced in our knowledge of pneumonia and the treatment of it. Let us see what is old and what is new.

Reviewing ancient literature embracing "physick" together with the oldest classics is not only peculiarly fascinating and productive of valuable enlightenment, but ancient accounts of disease impress us with a keen realization of the extraordinary degree of knowledge in medicine acquired by Hippocrates, his pupils, and his contemporaries, many of whom dedicated their lives to the healing art. In this task we are confronted with a vast array of testimony showing that very much of our present day knowledge concerning disease occupied the minds of men so long ago that any attempt to fix the date of its beginning becomes mere conjecture.

Commentators declare that the various treatises attributed to the "father of medicine" represent the oldest documents extant pertaining to the practice of medicine and surgery. We must not assume, however, that men were not credibly informed regarding the nature of many diseases, pneumonia included, and that records of clinical findings were not tabulated long before Hippocrates disseminated the fruits of his profound erudition toward the alleviating and curing of sick men. "With all his wisdom and practice," as one writer has it, "he could not have done what he did, if it had not been for a long succession of physicians, even from Aesculapius's time to his, which was eighteen generations."¹ The works of Hippocrates constitute a "performance surpassing the genius of man" as Suidas² succinctly expresses it, and leave an imperishable monument to his memory which will endure as long as human creatures remain.

There is no tinge of sophistry in the premise that learning is nothing else but reminiscence. Indeed, it is an axiomatic truth, vividly flashing its message across our minds the farther back we search in medical or non-medical literature. When we consider that Shakespeare together with innumerable literati basking in his genial and effulgent rays were plagiarists of the most pronounced type, and that plagiarism is everywhere evident in the writings of Tacitus, Virgil, Cicero, Herodotus—all ancient writers without exception, one should not assert unreservedly that all the documents of Hippocrates are genuine and authentic. Nor should we hastily conclude that he is entitled to priority in all matters re-

lating to the subject of human ailments although his writings were authoritative and voluminous.

Picking our course back to the dawning year of Christianity in search of medical lore pertaining to pneumonia, we find Celsus³ and Pliny the Elder⁴ deeply engrossed in presenting to the world their wonderfully interesting literary compositions dealing with wounds and diseases. But the counterpart of a great portion of their writings is met in works of Aristotle⁵ and Hippocrates who left a blazed and beaten path for their guidance several centuries earlier. And about four centuries before the birth of Hippocrates we find Hesiod⁶ and others giving expression to a knowledge of disease much of which afforded basic material for the former's aphorisms and other theses. Continuing our journey further into the dim past no mental acumen is required to clearly perceive that Hesiod borrowed much of his learning relating to disease from Homer.

Nor can this be called the beginning of recorded knowledge embodying diseases. For if we follow the historical paths of Moses we shall find that he also knew a tremendous amount pertaining to disease and kept records of the same as is evidenced in the Talmud.⁷ Besides studying the effects of foods and waters and the seasons as they produced a beneficial or a deleterious influence upon health, we learn that Moses and other deep thinkers among the Israelites had gathered together a vast amount of knowledge dealing with the nature of leprosy, dysentery, the menses, insanity, dropsies, asthma, poisons, plagues, lung diseases, and many other human ailments. Their familiarity with the employment of drugs as remedies and their potency was very extensive.

Fancy does not necessarily journey far to see that the erudite Moses no doubt acquired much of his learning concerning disease from the teachings of Abraham who had a "dangerous distemper" at one time, and who establishes clearly by the records he left that physicians were delving into the hidden mysteries of disease at that time, and were esteemed as highly nearly 2000 years before the Christian era as they are today.

From all of which it must be inferred that men kept records, crude as they were, since the inception of human reason, even long ages prior to the period when Moses placed his tablets bearing a record of the commandments in the Ark of the Covenant. Again, we must necessarily believe that pneumonia together with all diseases

we know anything about today menaced the lives of the first inhabitants of the earth. It is illogical to entertain a contrary opinion. Very little can be properly termed new, and this applies to diseases as to other things. If there is very little that is new in literature—and there is not, as plagiarism clearly establishes—then it is reasonable to assume that very much of our present day information relating to anatomy, medicines, and diseases, was well known to the ancients. Wonderful indeed has been the onward march of medicine with its tireless workers, and extraordinary advancement has been made in certain lines of endeavor, but much of our learning is merely the old thing with a different aspect or more highly polished. In the Antiquities of the Jews Josephus informs us that before the flood "which occurred 2656 years from Adam, the first man" two pillars were constructed, the one of brick, the other of stone, that in case the pillar of brick should be destroyed by the deluge, the pillar of stone might remain, and exhibit the records inscribed upon them to those who might come after them. And of this historical occurrence Josephus says, "Now this remains in the land of Siriad to this day."

But what did those people living during the epoch distinguished by Hippocrates know about pneumonia? How did they treat this so-called "Captain of the Men of Death," and was this Captain as indifferent and nonchalant during his forays on human life in the days of the long ago as he is today? What was ancient men's conception of anatomy and the functions of the lungs and the heart; what did they know about blood; and did they recognize the predisposition to disease caused by exposure, a debilitated body, and excesses, especially as they are applicable to pneumonia? Was disease rife as it is today, and what methods did they employ to combat it?

Aristotle⁸ informs us that "the lungs are anomalous, neither being divided into many lobes, as in other animals." The heart, he says, "has three cavities . . . there is a sinew in the principal cavity . . . that passages lead from the lungs to the heart . . . which receive the breath and transmit it through the heart." Again he says "Those persons are deceived who say that the lungs are empty, drawing their conclusion from dissected animals, from which all the blood has escaped. Of all the viscera the heart alone contains blood, and in the

lungs the blood is not in the lungs themselves, but in the veins by which they are perforated."

Plato's⁹ knowledge pertaining to the heart and lungs was somewhat different from Aristotle's, and the uniqueness of his description is apparent. He says, "that the great Architect of the universe has placed the lungs close to the heart, by nature soft and destitute of blood, and having cavities penetrable like sponge, that so the heart, when it quivers, from fear of adversity or disaster, may vibrate against a soft and yielding substance."

You of course know that Hippocrates¹⁰ has left the greatest amount of information and the best arranged, dealing with human ailments up to his time. He with his pupils, one of whom was Polybius, knew very much concerning anatomy and disease, and the interpretation of their aphorisms are eagerly sought and pondered over by many of the most profound thinkers in our ranks today.

Pneumonia in the time of Hippocrates was called peripneumonia. "If the winter is cold" he says, "the men are troubled with moisture and phlegm in their heads, and with frequent disorders of the belly from the phlegm's distilling downwards. The men are subject to . . . chilly cold fevers, long winter fevers . . . But pleurisies, peripneumonias, burning fevers, and such diseases, as are called acute are very rare in cities such as use standing and marshy waters, and are badly situated as to the sun and the winds. . . . If the summer be showery and southerly, and the autumn the same, the winter must needs be sickly. Phlegmatic persons, and those above 40, will go near to have burning fevers; and bilious persons, pleurisies and peripneumonias." In speaking of the effects of winds he says: "A northerly wind brings coughs, inflammations of the throat, chilliness, and pains of the side and breast." With respect to seasons he again tells us: "In the winter are pleurisies, peripneumonias, lethargies, rheums from the head, horseness, coughs, pains of the breast, side, loins, and head." In records of diseases he encountered during the years he practiced in ancient Thrace and Macedonia we read "coughs began the 14th or 20th day about the winter solstice (he does not state whether it was before or after), from the frequent changing of the southerly and northerly winds, and snowy weather; some of which lasted but a little time, others longer: and were succeeded by peri-

pneumonias in abundance. . . . The peripneumonias were very short; but inflammation of the throat came at last after coughing, or else held 'em a little while in the room of the cough." In his aphorism XXIV, Sec. V, we read "Cold things, as ice and snow, are enemies to the breast, they cause coughs, fluxes of blood, and distillations."

Both Homer and Hesiod¹¹ have preserved for us the fable of Pandora's Box—Pandora, the mythical beauty who unleashed her store of diseases and punished the human race because Prometheus aspired to be Jupiter's superior. In Hesiod's Works and Days we read "Now aforetime indeed the races of men were wont to live on the earth apart and free from ills, and without harsh labor, and painful diseases, which have brought death upon mortals. (For in wretchedness men presently grow old). But the woman having with her hands removed the great lid from the vessel, dispersed them: then contrived she baneful cares for men. And Hope alone there in unbroken abode kept remaining within, beneath the verge of the vessel, nor did it flit forth abroad: for before that, she had placed on the lid of the vessel, by the counsels of aegis-bearing, cloud-compellor Jove. But myriad other ills have roamed forth among men. For full indeed is earth of woes, and full the sea; and in the day as well as at night diseases unbidden haunt mankind, silently bearing ills to men, for Counsellor Jove hath taken from them their voice. Thus not in any way is it possible to escape the will of Jove."

Diseases have gone hand in hand with man since the first child gave voice to that initial wail heralding his advent into worldly affairs. And in all probability pneumonia scurried forth with the first litter that emerged from Pandora's box—pneumonia! the despair of physicians, but the friend of the old who pray that they may be spared a lingering illness or a death attended by great suffering.

Lobar pneumonia is defined as a self-limited disease, characterized by an inflammation of the lungs together with consolidation, a toxemia of varying intensity, and a fever terminating by crisis. The specific organism usually present in the disease is the *diplococcus pneumoniae*.

A typical case of pneumonia begins with a chill. Fever and headache are present. The respirations increase in frequency and within

a short time a dry and painful cough begins which is accompanied by a severe pain in the side and dyspnea. In a day or two we see a picture which can hardly be mistaken for any other disease. The patient's eyes are bright and he appears ill at ease: his expression denotes anxiety to fathom the doctor's mind in order that he may determine what the doctor thinks about his condition. Herpetic eruptions are often present on his lips, he lies quietly in bed, and the alae nasi may dilate as much as they would had he just finished a race. His breathing is hurried and the chest pain often causes an audible grunt during expiration. The expectoration soon becomes tinged with blood, and more and more tenacious. The pulse is full and bounding and the temperature may reach 104 or 105 degrees. The stethoscope reveals fine râles and blowing breathing, while percussion elicits the high pitched and perhaps the dull note of consolidation and hepatization, respectively. After about a week the symptoms abate and the crisis occurs with a fall in the temperature.

The clinical varieties of pneumonia are many as you of course know. And of the various types we often find cases greatly at variance with the so-called typical case just described. Occasionally no chill marks the beginning of the disease, and another case may exhibit a low temperature throughout its course. Cough may be slight or entirely absent in old persons, and occasionally it is absent in drunkards and in young children.

For almost a hundred years three stages in the inflamed lung have been described by pathologists—that of engorgement, red hepatization, and gray hepatization which is well understood by all physicians. Very little that can be termed new and of accredited value is met in present day literature that was not taught 25 years ago about pneumonia. Findings on autopsy, the physical signs obtained by percussion, auscultation, and inspection, the complications and the clinical varieties—all may be described in our text-books of today with a somewhat new nomenclature, but there is no proof significant pointing to a difference in the disease itself since it was first distinguished from allied diseases and given a definite name. Pneumonia is methodical and staid in its workings, showing no evidence of partiality for innovation.

Among the etiological factors cold and de-

bilitated conditions as a result of neglect or excesses are, in my opinion, the greatest predisposing causes of pneumonia. I place cold at the head of all causative factors. If you will indulge me I beg to submit my reasons for this statement and to say that in my opinion almost all clinicians have neglected to lay sufficient stress upon the importance of cold and exposure as the underlying cause of almost all pneumonias. When this is understood by physicians as I think it should be understood, I believe that pneumonia will cease to be a chimera among diseases—a *bête noire* to physicians.

We all know that the morbidity and the mortality of this disease during the summer months in our latitude is almost nil, or it bears no comparison with the curve during cold and changeable weather of fall, winter, and spring months. We recognize the fact, I believe, that although here and there are found coughs not aggravated by night air, in the major portion of human beings coughs become worse and intractable during the night when the air loses its heat from solar radiance. Again, it is a well known fact that the first call to attend a croupy child usually comes during the night when the air cools off.

Mortality statistics embracing pneumonia in southern states are fallacious. We are asked to believe that the incidence and mortality curves in pneumonia are as high in "hot countries" as they are in cold climates, and statistical figures from New Orleans, Galveston, and southern California are presented as proofs of such statements. But they are all misleading and deceptive. These cities are not in hot countries. A grower of citrus fruits in California would be looked at askance by experienced growers were he to attempt to raise oranges, lemons, and grape fruit without the protection of orchard heaters. Those who have lived in California know that almost all winters bring much weather that is cold and disagreeable. And it should not be forgotten that a large percentage of southern California's population during fall and winter consists of tourists who have reached the divide and are now following the trail downward toward life's sunset. Many have diabetes, rheumatism, and other diseases of a chronic nature which render them fit subjects for inroads of the pneumococcus. The strength of their youth is a phantom of the past. Young adults in whom disease has not yet gained

a firm foothold always form the minority groups among tourists the world around.

The orange-growing district of southern California near the cities of Pasadena, Redlands, Pomona, and Riverside, is in the same latitude as Atlanta, Georgia. And one cannot find much more disagreeable weather during winter than is experienced by a large share of the inhabitants of Georgia, Alabama, Louisiana, and Mississippi. In our latitude we prepare for cold weather and even though prepared with properly arranged heating plants and heavy clothing and well built houses, there are many occasions during fall and spring especially when we become careless. Fires are allowed to die down or our homes become overheated; winter clothing is donned too soon or removed too early in spring. But in the states just cited many winters are mild and the inhabitants live under a false impression of security. Many homes of even the well-to-do are not heated properly. Nor are they built to withstand cold, seldom having sheeting under the weatherboarding or double floors as obtains in northern homes.

Many living in the gulf states mentioned above are imbued with a false sense of pride as they endeavor to follow tradition and exhibit their "southern" climate to the visitor from the north or the callow settler. Few will admit that their winters are cold and disagreeable. The homes of negroes are almost all shacks resting on posts and many are without a vestige of plaster. Frequently may one see so-called well constructed frame houses in old southern districts shaken by the playing of a piano to almost as great a degree as our brick buildings in the north respond to the vibrations of passing trains.

The same conditions respecting cold and protection from it are found in and around New Orleans and Galveston. The only orange capable of withstanding winter's cold in the latitude of New Orleans and Pensacola is the Satsuma which is regarded as the most hardy of all oranges, and yet it is not always safe as was exemplified during the freezing weather which swept the southern states in 1917. The extreme of heat in the "southern" climate which includes the gulf states and northern Florida is 103 degrees F., and the extreme of cold is 13 degrees F.

Florida is our only state which can claim a position in the semi-tropical and sub-tropical zones, and only the southern third of the penin-

sula rightfully bears the distinction of a sub-tropical climate. Chilly and disagreeable weather is frequently met during the winter in northern Florida as far south as St. Augustine, sometimes extending to Ormond and Daytona. During the great epidemic of 1918 and the spring of 1919 the number of deaths from pneumonia and influenza in the southern half of Florida was extremely small, although very many northern people hastened back to their Florida homes from northern cities where the inhabitants were succumbing to the disease in an appalling manner.

I lived in the central part of the east coast of Florida during the summers and winters for six years. Engaged in citrus culture I was obliged to keep daily records of temperatures. These records show a remarkable equability. The following figures are illuminating. For example, during one winter there were eighty days of sunshine without a break in that part of Florida. The extreme of cold during the months of December, January and February for six years was 58 degrees, but the winters of 1917 and 1918 which brought the first disastrous frosts in twenty-four years are included in these figures. About 92 per cent. of the temperatures were read at 6 A. M., of each day, so 58 degrees is not entirely correct. Readings at noon would give a much higher average. Many days of the winter months give a midday temperature of 65 to 75 degrees and higher, while the morning temperature on those days may be 50 to 55 degrees. The temperature Feb. 2, 1917, was 24 degrees and Jan. 3, 1918, it registered 29 degrees at 6 A. M.

Equable weather in Florida obtains in the summer time as well, and the temperature remains with remarkable constancy between 80 and 90 degrees. On only one day in six years did the summer temperature rise to 95 degrees; on eight days in the same period of time it registered 94 degrees; and during the month of July, 1917, it remained below 90 degrees for 28 days. The cooling breeze from the sea together with very many summer rains (called there tropical rains) are the greatest factors in giving Florida a delightful summer climate. As far as I know sunstroke is unheard of in those parts of the state near the coast; I never heard of a case. Many go about without hats during all the days of summer with impunity, as innumerable northern people know. During some winters disagreeable

weather is met and light frosts destroy tomato plants, and tender vegetables, but this is the exception and not the rule.

The point I wish to emphasize in this digression relating to climate is that cold and pneumonia are steadfast companions, and that there is very little pneumonia in any warm or sub-tropical country in the world unless the elevation of a particular region is so high that marked changes occur as a result of it. In six years spent in Florida I attended only two cases of pneumonia and these patients were recent arrivals from the north. Very rarely does one hear of lobar pneumonia in the southern half of Florida, and it is my belief that some cases reported as pneumonia are merely attacks of bronchitis. Coughs are uncommon down there and a slight cough is often the cause of much alarm and anxiety to the timid and to the credulous. Several times I was called to attend patients in whom a diagnosis of pneumonia had been made, but there was nothing to justify such a diagnosis.

The cause of this equability of climate in the southern half of the Florida peninsula can be attributed to several reasons which I think should be considered here because there is no other part of the United States so favorably situated as to climate. First, as to latitude, the semi-tropical or orange zone of Florida is much farther south than the orange belt of California. Palm Beach which is in the sub-tropical zone is about 500 miles nearer the equator than Los Angeles and Pasadena. It is nearly or quite in the same latitude as Cairo, Egypt, and Calcutta, India. Second, the close proximity to the warm gulf stream, the inner side of which is within four miles of the coast at Palm Beach, about forty miles from the coast at Melbourne, while it is too far out in the sea east of Jacksonville (100 miles) to mitigate the disagreeableness of winter to any appreciable extent. Third, the peninsula juts down between a great gulf and a still greater ocean, the waters of which are too far south at that point to be affected by the cold waters of the northern ocean. Fourth, the nature of the soil, which is to a great extent a sandy loam. The sun's rays striking against a sandy soil produces great heat such as we see in the shimmering heat waves arising from a desert. But in the peninsula portion of Florida conditions are quite the opposite of those seen in a

desert. When the sun's rays strike the earth at an angle of 45 degrees, which it does at about 10 A. M., the cooled ocean air rushes in and occupies the vacuum produced by the heated air that has ascended. As a result pleasantly cool air blows toward the land of Florida's peninsula during almost every day of the summer. This same breeze continues during the winter, but the adjacent waters of the sea are too far south and too vast to become noticeably cooled by the northern winter before the sun of spring and summer again appears on the scene.

Let me repeat that pneumonia is of rare occurrence in the south half of Florida or in any warm country. As tuberculosis and rheumatism are in the same category so far as climate is concerned they deserve mention here. Tubercular persons are living in that part of Florida today who left northern states years ago with the stamp of incurability upon them. I am reminded of one family with four tubercular children who moved to that state 28 years ago. All but one of those children have raised large families. None of the four is robust, but they do not cough, and unless their history were known, it would be difficult to believe that they came from a tubercular strain. Rheumatism, too, which usually becomes worse during cold weather is of less or no annoyance to rheumatics who go there to live permanently.

In my opinion cold has more to do in inciting pneumonia than any other one thing. Without cold pneumonia would cause no more apprehension during our winters than it does during our summers. The ancients recognized the potency of cold, and from the day of Hippocrates to the present time one can readily see that cold and coughs and pneumonia constituted a trinity bound together in the closest ties of kinship. Ancient and modern literature abounds with references pertaining to the great fear the ancients bore towards cold and it tells of the fixed opinions they entertained concerning its importance as the chief causative factor in producing coughs and bronchial troubles. A great portion of the writings of Hippocrates as you know is devoted solely to the importance of regarding cold as the precursor of lung diseases.

Just as the features of many old persons in death assume the simple expression of their childhood days, and just as the furious man often

resorts to inborn traits of cruelty and bestiality which was a part of his savage ancestors, similarly it seems to me that many old persons evince an innate fear and dread of the cold. This apprehension and dread of winter's approaching cold with its marrow-chilling blasts fills the hearts of many old men and women with an indescribable feeling of insecurity and helplessness and impending danger that can be likened to the fear and terror grasping a child's heart as night approaches and darkness surrounds him. The ghost of fear alarms the child, while the specter of disease and trouble and pneumonia is heard by the aged man in every moan of winter's wind.

Let us now consider how to treat pneumonia. For treatment is the most important part of the entire subject. No matter how much or how often we employ the microscope, the electrocardiograph, the sphygmomanometer, or the metabolism apparatus, unless we can find a remedy to check or cure pneumonia we have made but little more progress than Hippocrates and we are still floundering on the rocks.

As with all seemingly incurable diseases innumerable remedies are described that have been proclaimed certain cures of pneumonia. Many are now abandoned as worthless, as you know, many still retain their place in the physician's armamentarium, while here and there we read reports of physicians who have had success with certain remedies in treating pneumonia.

The treatment I have used for twenty-one years follows. Upon the first visit to a patient I leave tablets of calomel and sodium bicarbonate, together with a three or four ounce solution of the tincture of aconite and the tincture of veratrum viride. Eight or ten $\frac{1}{4}$ -grain tablets of the calomel are given an hour apart and they should be crushed. If laxatives have been administered before my arrival I give the calomel, anyway. The tinctures should be made from fluid extracts. Stock preparations of these tinctures almost always result in the formation of a precipitate and I am sure that such a solution is of little worth. On the contrary, I am led to say from a long experience that solutions made from fluid extracts are of great benefit in reducing temperature and aborting many cases of impending pneumonia. If the fever is very high I order half a teaspoonful of the tinctures

given every fifteen minutes or half hour during the first three or four hours, after which a teaspoonful should be given at two or three hour intervals during the first day or two. During the third and fourth day teaspoonful doses of the solution are given from three to five hours apart depending upon the patient's pulse and general condition. I pay no attention whatever to much that we read in text-books pertaining to aconite and veratrum, especially to the length of time these drugs may be given with impunity, or to their alleged unfavorable action on the heart. I have never observed any untoward action. There is such a diversity of opinion concerning these drugs in medical books that it is logical to believe there is still much to learn about their action.

The patient is urged to drink half a glass or more of water with each dose of medicine. The tablets should be taken within a period of eight or ten hours, thus soon leaving the patient with only one medicine to take. During the first three or four days he should be aroused regularly night and day for his medicine and nourishment. Several hours after the last tablet has been taken, at least two heaping tablespoonfuls of Epsom salt should be given if the patient is an adult. Unless he be very weak he should sit upright during defecation. In the afebrile type I use the same eliminative drugs, together with the same solution of tinctures. But in such cases the solution is given in teaspoonful doses every two hours during the first twenty-four to thirty-six hours, after which it is given from three to five hours apart depending upon results obtained.

If the patient has been accustomed to drinking milk and one is reasonably certain that assimilation will follow, the milk should be taken some time after the salts acts in a thorough manner. I usually ask him to take plenty of soup and broth, with two or three feedings during the night, instead of milk. Only occasionally do I advise the giving of milk, and not at all if the pneumonia is of the influenzal type. Some of my influenza patients have not borne milk well; it is often vomited. And when I do order milk I ask that no fruit or acid food be given within an hour before or after taking the milk. If he is a coffee drinker an occasional cup of coffee does no harm, but on the contrary he usually feels better after drinking it. I use

every means available to keep his stomach in such a condition that nourishment will not be refused. A large portion of butter should be melted in the soup or broth and it may be made palatable by adding salt and pepper, else the patient may soon tire of it. It is of the greatest importance that his strength be maintained, and we strongly urge him to drink plenty of broth and soup.

In some cases I give no medicine after the third or fourth day unless it be necessary to give a stimulant. In the majority of cases the vigorous elimination at the onset of the disease and the seemingly beneficial effects of the tinctures leave the patient in such a state that he seldom refuses nourishment, and if he does we usually succeed in persuading him to take it anyway.

Even when the crisis appears to be collecting its forces preparatory to carrying off the patient, I give no stimulant unless I am very sure the patient's condition warrants it. However, upon the first indications of a weakening pulse or respiratory failure I give a tablespoonful of good brandy to which is added two drams of sugar and an ounce of water. This quantity of brandy and sugar is given every two hours until improvement is seen. If the pulse does not rally after one or two doses, then two or three or four times as much brandy is given with the same proportion of sugar and two or three ounces of water. Again, if I see that brandy alone is followed by no good results I dissolve a hypodermic tablet of glonoin, strychnine, and digitalin in each dose of the brandy. In some cases I dissolve two tablets in the brandy, thereby giving 1/25 grain of strychnine at one time. If the brandy combined with the tablets brings about no improvement in his condition after the administration of two or three doses at intervals of two to three hours, I continue with the brandy but give one or two tablets hypodermically. Very rarely have I found it necessary to give two tablets at one time, either hypodermically or per mouth. When the patient takes the tablet with the brandy I am careful to see that he gets all of it. As soon as an improvement in the pulse is apparent I reduce the quantity of brandy, lengthen the interval between doses, or give none at all unless an unstable pulse or dyspnea again appears. If the patient be delirious, comatose, or even apparently moribund I arouse him and force him to swallow by calling loudly into his ear or

shaking him, while the brandy is poured slowly under his tongue.

I give very little medicine for cough, thereby avoiding the racking of his body occasioned by a troublesome and weakening cough. I urge him to refrain from coughing. A pneumonic cough if indulged usually greatly distresses and almost always markedly exhausts a patient. About three days after the crisis I occasionally order an expectorant to be given two or three times daily when it appears to me necessary. Only rarely do I give morphin for the pain; two long adhesive straps applied to the side for a day or two usually afford sufficient relief after which they are removed.

A tonic mixture of arsenous acid, clear syrup of the hypophosphites and sherry wine is begun the second day after the crisis. When it appears to me necessary I employ this tonic as a mild stimulant and give it in teaspoonful doses every four or five hours for a day or two after the crisis up until midnight of each day. But usually it is administered in tablespoonful doses three times a day with his meals. At this time I endeavor to avoid any medication except the tonic. An alimentary canal that is clear of medicine is more apt to accept food and digest it as you know. At no time throughout the attack do we fail in strongly urging him to take broth and soup, and in some cases milk.

In my opinion one should first clear the way for the taking of nourishment by eliminating thoroughly at the onset and continue proper elimination; second, begin with the tinctures at once; third, feed the patient by all means available in order to sustain his strength; fourth, give no more medicine than is necessary; fifth, stimulate and stimulate freely when the time comes; and, lastly, stop all medication except a tonic soon after the crisis. In some cases it is advisable to give a few doses of spirits of nitre or the solution of potassium citrate during the first several days, but usually the large quantity of water drunk serves to produce ample elimination through the kidneys. It is well to order a tablespoonful of Epsom salt on the fifth or sixth day and again a few days after the crisis.

If the patient perspires freely I do nothing to check it, but urge him to keep his body and his arms well covered at all times. He should lie between blankets. Sheets and muslin gowns are often the direct cause of a chilling of the body.

Every precaution should be taken to avoid chilling the body; if he insists upon arising for any purpose his body and his feet should be well protected. I ask that the air in the room be fresh at all times but always warm, and cool air of the night must be guarded against. I think that all cases of pneumonia or influenza make better progress when the air in the room is warm. Nothing is worse for him, in my opinion, than to permit him to remain in a cold room, or to wheel the bed near an open window. If his bed-room is cold I immediately remove him to any room in the home, provided it can be kept warm. While making an examination I expose only a small part of the body at one time.

I do not allow alcohol rubs; any sort of baths, or a change of clothing until the crisis has been safely passed. Nor do I permit jackets or any sort of emplastrum to be applied to his chest. I insist upon eliminating everything that is unnecessary, and use every means available to avoid wearying and worrying and frightening the patient. Rushing in oxygen tanks, using the aspirating needle, whispered conversations, and repeated withdrawals of blood for examination—these, together with other measures that are often of no value whatever in saving your patient's life usually worry him greatly.

Every two or three hours after the second or third day has passed the attendant changes the patient's position to the opposite side. If he be delirious or bordering on coma he will have difficulty in breathing while on his back, his delirium is usually worse, and coughing occurs with greater frequency.

Just why the tinctures given together apparently succeed in checking the onset of pneumonia I am unable to say, but I am certain they do aid in aborting pneumonia if given properly. I know no more about their action than those physicians know about the action of Roentgen rays in the successful treatment of lupus and tinea of the scalp which is now accepted as a cure. Several theories may be advanced explaining their *modus operandi*, but such theories might in future years prove to be idle speculation. The fact remains, however, that the manner in which these tinctures have affected the course of pneumonia in my patients is, I think, remarkable.

A résumé of the results I have obtained in treating pneumonia may be interesting to you.

In twenty-one years I have lost only four cases of pneumonia—less than one per cent. Almost all were treated in the patient's homes. No record has been kept of the number of cases attended in that time, but I think a conservative estimate would be between 450 and 500. Many were taken care of during the epidemic of 1918 while with the U. S. Public Health Service in this state and on the Iron Range in northern Minnesota. The same initial treatment was employed in both pneumonia and influenza during that service and in every instance the patients recovered. No person having pneumonia or influenza died that I attended from the beginning of the disease while with the U. S. Public Health Service. The records of that service are of course obtainable. Three patients died in this state and one in Minnesota that I visited, but all had been under the care of other physicians for several days and three of the four were moribund when I saw them.

In all probability my cases were quite similar to those attended by any physician in general practice. Many were habitual drunkards in whom the disease ran the entire gamut of distressing symptoms, including delirium. Many cases were among the poor who lived in the midst of squalid and insanitary surroundings. In some cases during the epidemic other members of the family were ill of influenza and the attention given to the pneumonic was irregular and incomplete. While attending some cases, especially among the miners in northern Minnesota the floors and walls of rooms were badly fouled with sputum of delirious patients, and it was necessary to spread papers on the floor in order that we could approach the patient's bed.

I think that the tinctures given together are of as great value in the treatment of influenza as they are in pneumonia in aborting the disease. Furthermore, my opinion is that strychnine, nitroglycerine, and digitalin combined in a hypodermic tablet and given alone or with brandy is the very best stimulant obtainable, and is almost as valuable a remedy in pneumonia as are the combined tinctures.

A true picture of the respiration and heart during the critical period cannot be thoroughly ascertained without frequent use of the stethoscope. The instrument I employ has a small bell with thick and short tubing. A large bell

bridges the depression between ribs so that it is not in perfect contact with the skin. Neither the bell nor the tubes should be touched with the fingers when it is possible to move the patient so that it rests evenly against the skin. This precaution enables me to detect many chest sounds that I cannot hear in any other way with an ordinary stethoscope. Occasionally I press the bell down with my thumb nail. Rubbing of bed clothes or a garment against the skin during rapid respiration often serve to confuse the examiner, too. I hold my breath during the time I endeavor to locate sounds with the stethoscope.

In treating pneumonia I take nothing for granted. If a nurse records a pulse at 120 when it is 140 the physician is at a disadvantage if he accepts those figures. I think he should know all about his patient's condition at all times. During the crisis I remain with the patient until some improvement appears and if called away soon return.

The few drugs described in the above treatment of pneumonia have served as loyal and trusted soldiers. With their aid men have again steered out into the open stream who had abandoned their oars and were entering the shadows. I do not give other drugs or try other methods in treating pneumonia because the treatment described has saved the lives of almost all my patients. I think as Galen did who long ago taught that "it is hazardous to experiment in a case which involves the life of a human being."

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THE FARM THE BIRTHPLACE OF NOTABLES

After a study of the biographical sketches of people who appear in the 1923-24 edition of "Who's Who in America," it has been found that 25.9 per cent. of present-day American notables were born on farms; 24.5 per cent. in villages and towns; 24.8 per cent. in small cities; 20.6 per cent. in large cities, and 4.1 per cent. in suburbs.

OBSERVATIONS ON THE TREATMENT OF GOITER*

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The thyroid gland is an extremely labile organ. Its functional activity varies with season and sex, with age and exercise. Its response to variations in other endocrine organs is marked; hence during puberty, menstruation and pregnancy, we frequently find hypertrophy of the gland. The character of the food likewise, apart from its iodine content, has a definite influence on thyroid activity. A diet, rich in proteins, has been proved experimentally to produce increased function. Tryptophane, which is present in all proteins except gelatin and zein, and is said to be the precursor of thyroxin, is possibly largely responsible for this effect. It has been shown that the ingestion of certain other amino acids, such as tyramine and histamine, has the opposite effect, namely, a reduction in the size of the gland. According to McCarrison, fats in excess cause thyroid hyperplasia. It is largely as the result of the foregoing observations that a diet consisting chiefly of milk and vegetables has been recommended for toxic and exophthalmic goiter patients.

In 1820 Dumas and Coindet demonstrated the value of iodine in goiter therapy, but it remained for Marine and Kimball to show that endemic goiter was a preventable disease associated with a deficiency of iodine in the food. Pregnant women with goiter should be given iodine, because a certain amount is essential to the normal development of the thyroid of the fetus in utero.

Treatment of Simple Goiter during childhood and the adolescent period is medical. Attention to personal hygiene, removal of infective foci and the administration of iodine are the proper measures to be adopted. After the age of twenty years, iodine should not be administered, except in minute doses, such as are used in prophylaxis. Probably the iodine treatment of established goiter in adults is, on the whole, doing more harm than good; its indiscriminate use cannot be too severely condemned. The number of cases of induced hyperthyroidism one sees and the

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number of cases reported in the literature, has rapidly increased during the past few years. Jackson¹ states that twenty-five per cent of his cases of toxic goiter treated last year were of this type. A simple goiter in a patient over twenty-five years of age is usually permanent and if causing local or toxic symptoms, or is unsightly, should be removed surgically.

In *toxic goiter* (and by this term I mean any colloid or adenomatous goiter that has developed toxic manifestations) the *treatment* is positively surgical. Removal of the diseased portion of the gland is followed by complete relief from symptoms. Operation on these patients during the acutely toxic stage is, however, attended with great danger. Reports from some hospitals show an operative mortality for this group, equal to that of true Graves' Disease. These hypertoxic cases are frequently misdiagnosed true exophthalmic goiter and it is only by a careful histological study that the correct diagnosis can be made. Where the enlargement is unilateral, as in a single adenoma or cyst, resection-enucleation of the affected lobe is all that is necessary. Should both lobes be enlarged as in colloid goiter or general adenomatosis, bilateral resection is indicated.

Speaking in a general way, operation in these toxic goiters can and should be fairly complete for the following reasons:

1. Adenomata may be left and from these undetected nodules recurrences may develop.

2. The possibility of malignancy, present at the time of operation (rare), or subsequently developing. Allen Graham² claims that ninety per cent of malignant goiters develop from fetal adenomata.

3. Patients with toxic goiter have usually passed the age of forty and their requirements for thyroid tissue are small. Furthermore, the most normal part of the gland is that immediately in front of the posterior capsule, which is the part conserved.

For several years I have been impressed by the marked difference in the condition of the heart in exophthalmic and toxic goiter. In the former, which usually occurs in younger patients, the heart beat, though markedly accelerated, is regular except in cases of long standing. In toxic goiter, on the other hand, cases when first seen, often have definite cardiac arrhythmia. The

essential difference would appear to be that in exophthalmic goiter there is an excessive stimulation of the accelerator nervous mechanism of the heart, while in toxic goiter, the hormone circulating in the blood early selects the heart muscle, causing degenerative changes. Consequently, many cases of toxic goiter present themselves in the stage of cardiac decompensation and would thus appear on superficial examination to be primarily heart cases. Often the onset of severe heart symptoms is associated with an acute exacerbation of toxemia. I do not believe that this heart crisis ever develops suddenly. Reviewing the history of these patients, one can usually elicit a train of symptoms suggestive of a mild chronic thyroid toxicity, extending over a period of many months or years. The point is, how can these serious cardiac conditions be prevented? The solution undoubtedly lies in the early recognition and treatment of this incipient form of hyperthyroidism. The two outstanding diagnostic features invariably present are a moderate but persistent increase in the pulse rate and an increase in basal metabolism, as shown on repeated examinations. Here the assistance of the basal metabolic test in making an accurate diagnosis is invaluable and should be used in all cases of unaccountable tachycardia, whether the thyroid is enlarged or not. The differentiation must be made particularly from psycho-neurasthenia, incipient tuberculosis and primary and other secondary heart lesions.

The following case, of which there are many, will serve to illustrate this point: Mrs. L., aged 42 years, applied for admittance to the Winnipeg General Hospital. She complained of slight indisposition and general weakness, but on examination nothing organic could be found. She had a small, insignificant adenoma in the isthmus of her thyroid. She was kept in bed and under observation for a few days, during which time her chart showed a constant pulse rate of about twenty beats above the normal line. Further investigation of her cardio-vascular system showed, apart from the tachycardia, nothing abnormal. Her basal metabolism was plus 19. Her past history revealed that two years previously she had had an illness, definitely suggesting hyperthyroidism. Resection-enucleation of the adenoma in this case was followed by definite and continued improvement. A large

number of our severe toxic adenomas on inquiry gave a history suggesting this mild form of chronic toxemia. While I have no brief for indiscriminate operating on cases of symptomless goiter, yet the prevention of the more serious forms of thyreocardiacs demands the recognition of these milder thyroid toxemias and early surgical treatment.

The Treatment of Exophthalmic Goiter (True Graves' Disease) is one of the most difficult of medical problems; calling for the combined co-operation of family physician, internist, and surgeon. While we do not know what measures the future may evolve for relief from this disease, at the present time the only adequate treatment is surgical. The one disquieting feature, however, is the high collective operative mortality. In 1921 I wrote 100 hospitals of the United States and Canada for their statistics on goiter. At that time the operative mortality for exophthalmic goiter averaged 8 per cent. Recently I wrote to 200 more hospitals (Category A according to the classification of the American College of Surgeons), and a summary of these later reports show the average operative mortality practically the same, 7.1 per cent.

COMPILED STATISTICS FROM SEVENTY HOSPITALS
OF THE UNITED STATES AND CANADA
TWO YEARS 1922-3

	Total Number	Operative Mortality	Per- centage
1. Simple Goiter (non Toxic)...	1403	10	.7%
2. Toxic Goiter	1352	35	2.4%
3. Exophthalmic Goiter	1116	80	7.1%

I know that these are not the statistics of Lahey, Crile or the Mayo Clinic or others who have this work highly specialized, but it is the statistics of the rank and file of surgeons and others operating in our best hospitals today. This calls for serious consideration on the part of the staffs of these hospitals, because we are dealing with a disease that is seldom fatal, unless neglected indefinitely. The factor that has contributed most to lowering the operative mortality is, a better selection of the time for operating. With the exception of a very small percentage of fulminating cases that die in the first attack, no matter what treatment employed, we have come to realize that most cases recover from the first and may recover from several attacks. Operating during the acute stage is attended with a high mortality; operating when the attack has subsided gives practically as low

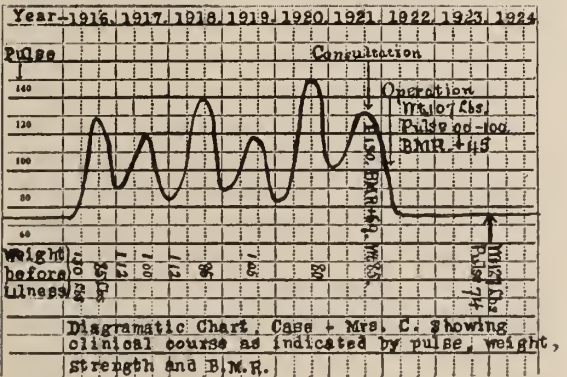
a mortality as the operation for simple non-toxic goiter. The two main arguments for early operation are: First, conserving the time in which the patient is incapacitated for work, and secondly, the lessened morbidity incident to a prolonged illness. Conservation of the patient's time is commendable, especially in these days of economic stress, but when bought at the expense of an increased mortality, the value received does not justify the price paid.

The morbidity is not due to the patient having passed through one crisis, but rather to having passed through many crises. The argument, therefore, to operate to cut short a crisis, is not justifiable in the face of the present operative mortality. Those who teach immediate operation, even a preliminary ligation, irrespective of the stage of the disease, are in a large measure responsible for this high general operative mortality.

The natural clinical course of exophthalmic and toxic goiter has not received the study from clinicians that the condition deserves. There is an ebb and flow of symptoms, and these exacerbations and remissions are not of short duration, but more or less prolonged. Their duration is measured by months, not by weeks. Plummer³ in 1913 made the statement that from the onset of an attack of toxicity until exacerbation had passed off was an average of twelve months. I have observed the clinical course of my cases and studied their past history, and while the course is often variable as to duration, as in all other diseases, yet there are certain outstanding features that are characteristic. The course was never a short one, i. e., from the onset of an attack until its termination was always a matter of several months. The interval of remission likewise was never short. When the remission stage is reached, the patient may experience almost entire relief from symptoms and may be for a variable time practically well. In others, however, there will be a residue of symptoms. The pulse rate may be ten or twenty beats above normal, the capacity for work lowered and the basal metabolic rate if taken, will be constantly above normal. The period of remission is usually followed by another exacerbation and this, within a few months' time, though an interval of some years may intervene. Undoubtedly a few remain well, having no return of

symptoms. The following case is striking and shows the typical periodicity of the attacks:

Mrs. C., aged 29 years, when seen by me in consultation in the Winnipeg General Hospital, had all the classical symptoms of exophthalmic goiter. Her thyroid was moderately enlarged, there was definite exophthalmos and a fine tremor. Pulse rate was 130 but regular. The basal metabolic rate was plus 69. Her past history was most interesting. She had had during the past five years exactly five attacks, incapacitating her for periods of from five to six months each year. I suggested rest until this attack had subsided, as the history showed her previous attacks had done. She did not report for operation until six months later, when I resected both lobes of the thyroid, leaving about one-eighth of the gland on each side. The subsequent history of this patient shows that she has been in perfect health since her operation, having had no return of her former attacks.



Another case illustrates a long period of remission, Miss R., aged 38 years, school teacher, presented all the cardinal symptoms of exophthalmic goiter in the acute phase. Four years previous to this she had complained of similar symptoms incapacitating her almost a year, during which time she was treated for a nervous breakdown. This is the longest interval between attacks that I have observed, with the exception of one case that has remained well for eight years since her first attack. It is questionable if this case is one hundred per cent well.

Hymen and Kessell⁴ have made the claim that they can obtain as good results by a period of rest and hygienic treatment as can be obtained by surgery or any other means. They call their treatment "Skillful Neglect." It is, however, the best treatment I know of for the acutely toxic

stage. What they have accomplished is, they have carried their patients through their crises into the negative phase of the disease. It would be interesting to observe these patients further to see how many would relapse in the course of time. Their cases appeared to be, judging from the basal metabolic rate, in excellent condition for radical operation.

In the management of my exophthalmic goiter cases during the past five years, I have been trying to eliminate all preliminary surgical treatment, such as injections of boiling water into the gland and ligation of arteries, and I think I have succeeded. This has been accomplished by a careful study of the phases of the disease and operating only when the acute stage has subsided. Furthermore, I have been able to do the complete operation of bilateral resection at one sitting, except in a few cases where it seemed wiser to divide the operation into two stages, first resecting one side and the other two or three weeks later.

The "Hands-off" period varies in every case and depends on the stage the patient is in when first seen by the surgeon. If seen early in the attack a delay of seven or eight months, rarely longer, may be necessary. Whereas, if seen in the later months of the attack, the patient may be well over the crisis and soon ready for operation. Those in the negative phase when first seen require no preliminary treatment. The usual objection made is that these patients will not wait so long for operation. Tuberculous patients will go to bed for six months, a year, and some several years if necessary, because the medical profession are agreed that that is the proper thing to do. I know of three deaths from precipitate operating in exophthalmic goiter, when a pre-operative period of delay was advised. When it comes to a question of eight months' rest or an eight per cent operative mortality, I would take the eight months' rest.

My operative mortality has been as follows:

Simple non-toxic Goiter—122 cases.		Percentage
Operative Mortality		
Colloid	53	1. Embolus (10th day)..... .8%
Adenomatous	56	
Cystic	12	
Abscess	1	
Toxic Goiter—79 cases.		
Colloid	36	2. Heart Wrecks (year 1919).... 2.5%
Adenomatous	43	
Exophthalmic Goiter—61 cases.		
1. Postoperative Storm following Lobectomy (year 1915).....		1.6%

Lugol's solution will effect an improvement

in a large percentage of these cases, thereby shortening the pre-operative period of rest; others again do not show this improvement. Lugol's solution does not replace the rest period, but aids it as an immediate pre-operative measure. I would not operate on a severely toxic case on the improvement obtained from two weeks' treatment with Lugol's solution, unless the patient was first over the crisis. One of our cases, a young woman in her first attack (the most dangerous type of case for surgery), operated on in the eighth month, had a severe post-operative reaction, though on Lugol's solution for ten days preceding her operation.

Unless the patient, the anxious friends and the surgeon have the necessary self-restraint to wait the most favorable time, the operative mortality in exophthalmic goiter will continue high.

I wish to here thank the Medical Superintendents, the Sisters and the record officers of the hospitals who so kindly furnished me with their statistics on goiter, thereby contributing to the value of this study.

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PUERPERAL INFECTIONS*

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Under the general term puerperal infection are included all those morbid conditions resulting from wound infections due to the introduction, during labor or the puerperium, of infective microorganisms into the female generative tract. The treatment of these conditions has been the subject of considerable dispute and our methods of handling these cases may be the direct opposite of those in the usual practice of many physicians.

The object of this essay is to call attention to the radical change in the teachings of a goodly number of our masters, a marked tendency to discard the practice of active interference, employing in its stead that surgical procedure

which would apply to any infective wound elsewhere together with conservative management of an acutely sick woman.

It is now quite universally agreed that a temperature of or above 100.4, lasting for 24 hours, occurring during the puerperal state is proof positive of an infection.

We must carefully eliminate other conditions such as typhoid fever, influenza, acute miliary tuberculosis, tonsillitis, pneumonia, acute yellow atrophy of the liver, tubercular peritonitis, cholecystitis, ureteropyelitis and mastitis, and such examinations should be repeated at intervals of several days to avoid unfortunate mistakes.

It is of considerable value to know the bacteriology of the infection and such should be determined early in the second twenty-four hours. This is only a factor in indicating the line of treatment to be adopted in a given case as the bacterium isolated may be only a harmless occupant the real spread of the disease being due to an entirely different organism, our best guide being the clinical manifestations of the various types of infections.

When the case has been diagnosed as one of infection, we must learn the location, the direction of spread, whether the infection is general, the prevailing type of organism and whether the uterus is empty. A careful study of the history of the case should be made. Was the delivery instrumental? What damage to the birth canal, and what, if any, repair? If not limited to the uterus, have we a local infection with general toxemia or has the blood been invaded? The severity of the illness is a fair guide, continuous high temperature, rapid pulse and resultant prostration, indicating a pathenemia.

Of an increasing importance in the treatment of this disease is the prophylaxis. So much can be done by prevention and so little by treatment that our efforts should concentrate on a technique involving asepsis, a physiologic conduct of labor and a policy of non-interference. During pregnancy much can be done in preparing the woman for the advent of labor, clear up existing infections such as: intertrigo, eczema, suppurative ears, furunculosis, vulvitis, etc. Instruct the patient in body hygiene. Coitus, self-examination, and the full bath should be forbidden in the later months. Remember the underlying principles of Crede: first, limit the puerperal wounds; second, prevent infection of the neces-

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sary puerperal wounds. Apply the surgical principles of limiting the operative wound and conserving the tissues from the stress of undue manipulation.

It is entirely possible to conduct the majority of labors by abdominal palpation, auscultation and repeated rectal examinations. Only in case of prolapse of the cord, hemorrhage, as in placenta previa, or when the progress of labor has been arrested, is vaginal examination necessary.

If vaginal examination is indicated, use the same precautions as practiced when entering the abdominal cavity. Conserve the bag of waters, and avoid any procedure that tends to shorten normal labor, as manual dilatation of the cervix, having the woman bear down before the head has slipped through the cervix. Do not use ergot until the placenta is delivered. Limit the use of forceps to real indications. Avoid douches in normal labors. Prevent perineal and vaginal tears as far as possible by a patient conduct of the second stage, but avoid the other extreme of permitting the presenting part to pound a tight perineum for hours when a better procedure would be a median or lateral episiotomy with forceps.

Only strict indications should justify interference in the third stage. Await the spontaneous separation of the placenta, as forced efforts at Crede bruise the uterus and diminish its resistance to infection, manual removal being only employed where there is hemorrhage or pathological adhesion.

Inspect the placenta and membranes. If there be membranes to the extent of one-half or placental parts remaining in the uterus, DeLee recommends their removal at the time of labor. Polak does not invade the uterine cavity even under these conditions. Operative or breech cases call for a complete examination of the uterovaginal tract. A routine vaginal examination at the completion of the third stage of labor cannot be too strongly condemned. Such a procedure would result in a much larger percentage of abnormal puerperae.

Repair all lacerations of the perineum that are one-half inch or more in extent, unless contraindicated by the condition of the patient, after which no internal examinations are to be made and no douches given, unless for hemorrhage. Use only external, vulvar, antisepsis.

Curative treatment being based, as it is, on

the recognition of a disease considering the interior of the uterus as a large wound and the port of entry for bacterial invasion. Very divergent views are present in this connection, but the trend of opinion seems to be toward physiological treatment—that is, by aiding and stimulating nature's own methods of combating disease.

The local treatment, according to surgical principles, would be to remove clots, membranes, placental fragments, destroy bacteria, neutralize toxins, and in general cleanse the tract, but such a procedure is unsafe and defeats nature's physiological defence and spreads the disease beyond the limits of the uterus. Intra-uterine douches of antiseptic solutions enjoyed the greatest vogue from 1881 to 1900 and have gradually fallen into disfavor, the objections being:

1. The bacteria are beyond its reach within fifteen minutes after inoculations.
2. Painful, and violent uterine action may be set up.
3. Part of the liquid may escape through the tubes into the peritoneal cavity, resulting in syncope, vomiting, and peritonitis.
4. The antiseptic may be poisonous. Over 50 cases of bichlorid and carbolic-acid poisoning are on record.
5. Trauma or perforation of the uterus, with extension of the infection, or sudden death, usually from air embolism or cardiac paralysis.

If one has to deal with putrid endometritis with accumulated debris an intra uterine douche with several litres of sterile salt solution will be better than any known antiseptic solution; such treatment being contraindicated in other forms of edometritis and when the infection has extended beyond the uterus.

Continuous irrigation of the uterus had some vogue but was abandoned. Swabbing out of the uterus with gauze about a pair of dressing forceps was advocated by opponents of the curet, but little clinical value was claimed for it.

Curage, or digital removal of the contents of the uterus, is endorsed by some authors, including Williams, Hirst, E. P. Davis, Bumm, Ahlfeld, and Pinard, with or without aseptic or antiseptic douches before and after the operation. Curettage has been rather generally employed, but at the present time we find opposed to this treatment, Williams, Watkins, Rees, Bumm, Kronig, Olshansen, and others, some of whom formerly advised the procedure.

The dangers of the curet in the puerperal uterus are those of curettage intensified. It breaks through the leukocytic bank, spreading

the infection into blood radicles and lymph channels. It has been repeatedly shown that it is not possible to remove the uterine content with the curet. Always more is retained than is removed. The bacteria have passed beyond the reach of the curet into the deeper tissues. Perforation, hemorrhage, and air embolism are actual possibilities of the curet, and DeLee claims it would be just as rational to curet the nose and throat in cases of diphtheria as to curet the uterus in sepsis. In the plan of treatment in general use at the Chicago Lying-In Hospital, the local treatment has been practically abandoned, a policy of non-interference with respect to active local and general measures being the rule. The patient is put in complete mental and physical rest, a brisk cathartic administered, with much fluid, an ice bag, or hot water bag, as preferred, is placed over the uterus and ergot and hydrastis 15 m. each given by mouth thrice daily. Sutures in perineum and cervix are removed to provide drainage. Even when certain there is something in the uterine cavity the uterus is not invaded. The patient is sometimes propped up to aid drainage. A policy of let alone is now followed. The patient is watched for localization of infection and occasionally this point is operated on.

This policy of non-interference covering nineteen years and almost 20,000 deliveries has resulted in nine deaths from infection, of which five died under questionable treatment in other hands. In none of these cases did the subsequent course show that a more active treatment would have influenced the result.

From the statistics of the Long Island College Hospital, 5,000 consecutive confinements attended by senior students and delivered in the homes by a simple aseptic technic, without vaginal examinations, the progress of the labor being watched throughout by rectal and abdominal examination, there was not a single death from infection.

This plan of treatment is followed at the New York Lying-In. Dr. A. B. Davis says the puerperas are put out on the roof and let alone. The care is left to the nurses. At the Allgemeines Krankenhaus, Vienna, puerperal infection is treated expectantly, unless there is something in the uterus. This is first removed. At the second Clinic the treatment is expectant without removal of the contents of the uterus, until the tempera-

ture is normal. The Germans use rectal examinations extensively. The French say it is too unesthetic for the French woman.

Some authorities are certain that the retraction and drainage of the uterus are facilitated by the Fowler position, supplemented from time to time by having the patient turn over to lie on her abdomen.

As previously stated, interference so far as local treatment is concerned is only indicated where there is hemorrhage. Then the uterus is packed with gauze strips 2 per cent. iodoform to stop the flow and aid in the expulsion of retained masses causing it. This can be repeated upon removal, for several days, if needed. Often when the packing is removed, the foreign matter comes away and the temperature drops. Only after there is sufficient local tissue reaction with involution of the uterus is the removal of retained tissue attempted. One should wait as long as possible, and the procedure is not safe until the temperature has been normal for two or three weeks.

Many writers are not so sure of this position and advise a primary palpation of the uterine cavity, with the immediate removal of its contents. They emphasize the danger of the procedure where the infection is streptococcal, urging that it then be omitted. We have already shown how it was impossible to prove the organism, and surely before the streptococcus could be demonstrated the infection has gone through the uterine wall into the parametrium.

On the other hand, the pyococci types can wait for a few days to see what course the disease will take. Surely the active adherents of this policy are diminishing in number. The great Crede of Leipsig shortly before his death, strongly emphasized its dangers and advised its total discontinuance.

The various forms of douching, curetage and other forms of local interference with the process of healing, as adopted by nature, should be limited to the one indication—to stop hemorrhage.

For those who have abandoned the local treatment, the general measures should be to improve the health of the woman, to raise her resistance and enable her organism to increase its powers of combating disease. Results from outdoor treatment have not been as good as expected. Sleep is necessary, and if rest and quiet does not

bring it, morphin should be used. The patient must be quiet and should be isolated. The dangers to others are well known. Nursing of the child should be stopped. The mother needs all of her reserve force and the child may be infected.

High fever calls for sponging, cool packs and baths, unless contra-indicated by a poor breast condition. Avoid drugs as much as possible. Alcohol has lost favor, but can be used— $\frac{1}{2}$ oz. daily, or an eggnog or wine.

The bowels should be carefully regulated, as stated—a brisk cathartic at the outset of the disease. After parametric invasions, cathartics are contra-indicated. The lower bowel is kept emptied by small enemata. Diarrhea may be nature's method of ridding the system of toxins, and unless the patient is exhausted, is not interfered with. Charcoal and salol, or better, magnesium ustra, will control the symptom. Vomiting is always a bad symptom, and, if bilious, points to a fatal ending.

Mouth feeding must be supplanted by rectal feeding. Saline solution with grape-sugar, three drams to the quart, is given by the drop method. Washing the stomach will relieve the vomiting unless of the peritonitic type, against which we can do nothing.

When meteorism is troublesome, milk and molasses enemas will relieve, over-feeding and cathartics being avoided. Physostigmine salicylate is used, $\frac{1}{60}$ th grain every four hours, but is of little value. The rectal tube with washing of the stomach a little later is of assistance.

Chills are treated with warm coverings, hot drinks and $\frac{1}{4}$ grain morphin.

Spare the patient every effort. She should not see anyone but those in attendance. Quinine in the dihydrochloride solution up to 30 grains daily has been used empirically in these and other septic conditions and is recommended. Cardiac stimulants are withheld until needed. Digitalis and strychnine are of little value. An abundance of fresh air is better. The patient must be reassured of her recovery. Her mental state influences her physical well being. Your own demeanor should tell her that all is well and many of these hopelessly sick women are very alert.

Under the heading of specific treatment are usually given all those measures used as a last resort, or to make us believe we are doing some-

thing. Probably their value would be more apparent were we to use them early in the disease.

Transfusion in infection serves the double purpose of lessening the secondary anemia and raising the leucocytic defense, which together with a raising of the blood pressure helps to restore functional activity of the organs which bear the brunt of the defense. Why not increase our blood resistance at an earlier date, rather than a last resort? A large transfusion probably embarrasses the circulation and engorges the blood forming organs. The temporary effect is an increase in the leucocytes, a raise in the hemoglobin. After 48 hours they rapidly fall. Smaller amounts can be given every third day. 300 cc given slowly, preceded by a hypo of morphin, 1.3 grain. There is less reaction if given in the morning when the temperature is lowest. The advantages of citrated blood are its simplicity. The patient remains in bed, the donor is absent, and we lessen the psychic disturbance.

The serum treatment has not been conclusive. Anti-streptococcic serum has been used for years. All serum has been tried, horse serum, diphtheria, tetanus. Probably our friend from Philadelphia, armed with his small doses of triple distilled water is doing as well by his patients.

Vaccine therapy here, as elsewhere, in acute infections has been found wanting. Of the drug therapy the list is a long one—mercury in the form of inunctions and the bichloride has been injected intravenously. The late Dr. Stowe used the latter in 34 cases, with no harm, but without decided benefit.

Chalfant and Miller report a series of streptococcic infections treated with salvarsan with rather good results. These results have not been substantiated in the hands of other workers. Colloidal salts of silver, Collargol, as introduced by Crede have been disappointing.

Salt solution, as used in surgical cases, is valuable used by the drop method in the rectum. It is less distressing to the patient than the intravenous or hypodermic methods. It probably stimulates the secretive and excretive organs, may dilute the toxins, and does increase the pelvic circulation.

All are agreed as to the treatment of localized infections. Extirpation of the uterus has been employed to prevent extension of infection several hundred times, with varying success, a general mortality of about 50 per cent. resulting.

If we are able to place the infection as a localized lesion, the following conditions justify the operation:

1. Rupture or perforation of the uterus with beginning peritonitis or during the local treatment within it.
2. Infection of a fibroid.
3. Cancer.
4. Infection with a molar pregnancy.
5. Abnormal adherence of the placenta with infection.
6. Incarceration of all or part of an ovum, as missed labor or abortion with infection.
7. Uterine abscess or gangrene.

The pelvic veins have been ligated with a view to stopping a thrombophlebitis. Williams, quoting the literature, gave a mortality of 44 per cent. The operation may be indicated in subacute or chronic cases, but contradicted in acute cases.

DISCUSSION

DR. R. E. L. GUNNING, Galesburg: It has been our unfortunate experience to have a few of these cases recently and we used Young's mercurochrome because we did not know what else to do. We obtained very surprisingly good results. We had four cases and we did not get the severe reaction that Dr. Young has described, that is the temperature reaction and chill, but we did get after the second or third intravenous injection a very severe peristalsis that was easily controlled with tincture of opium. We found that mercurochrome did these patients a great deal of good. I think probably it does more good in cases infected with the colon bacillus than on those cases with streptococcus bacillus, however, I have not had enough experience to determine that.

DR. D. N. EISENDRATH, Chicago: I want to cite a case I saw in consultation. A girl who had been confined down in Central Illinois came to Chicago with a diagnosis of malignant endocarditis in the third week of her puerperium. She had had a chill. Her temperature would shoot up to 103 or 104 and then drop down to normal. The chills would come on at recurrent intervals. Dr. Wright made the diagnosis, because the gynecologist could not find anything in the genitalia, of malignant septic endocarditis. After she had run this course for three weeks I was asked to see her. I suggested the possibility of one of those cases that the Doctor has referred to. We catheterized the ureters and found colon bacillus in both kidneys. We washed them both out. After the first washing the temperature shot up again. After the second washing it remained down. I simply want to tell you of the necessity of bearing this in mind before thinking of yellow atrophy, because the germs can go very easily through the lymph channels.

DR. F. F. MAPLE, Chicago (closing the discussion): The work of Dr. Young regarding mercurochrome as far as the report went certainly sounds very conclusive. The small number of cases that have occurred show you that we have not had a large

amount of experience in treating those cases that we probably should have.

The kidney infections that Dr. Eisendrath spoke of are very frequently overlooked.

DIAGNOSTIC AND THERAPEUTIC X-RADIATION IN PREGNANCY*

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THE DANGER OF DIAGNOSTIC X-RADIATION IN PREGNANCY

On December 17, 1924, Dr. Irving F. Stein presented before this Society an excellent resumé of the newer diagnostic methods of gynecology, with special reference to the use of the x-rays and artificial pneumoperitoneum. Tonight, it is our intention to offer a few remarks on the use of the x-rays in pregnancy, either for diagnostic purposes only, or for the correction of some pathologic condition that may be associated with the gestation. We especially wish to emphasize the distinction, from the standpoint of danger to the mother and to the child, between the diagnostic and the therapeutic use of the rays.

The possibility of danger to the fetus or to the mother from exposure to the rays is a question that has arisen not only in the profession but among the laity as well. This question is frequently asked both by doctors and patients when the suggestion is made that an x-ray examination be resorted to in order to determine the existence or non-existence of a pregnancy, or to ascertain the exact position of the fetus *in utero* or the presence of complicating factors.

Let us emphatically answer this at once by stating that it is our belief that when used for the short time that is necessary to obtain a diagnostic plate, especially if the exposures be made at suitable intervals of time, there is no danger of unpleasant or disastrous sequelæ to either mother or child. We believe that most obstetricians and radiographers concur in this opinion. We should add, however, that the time has not yet arrived for a positive assertion to this effect. We are not ready to accept unqualifiedly the positive statement made recently by Shenton and Horwitz (1924), of England, that there is no danger, and that new-born babes show complete immunity to ordinary x-ray exposure. How do they know this? Why should new-born infants

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show such an immunity when it is well-known that the x-rays have a special predilection for embryonic tissues? It will require years of experience with much clinical data to arrive at a positive conclusion as to this most important matter. We do know that a note of warning has been sounded by men of recognized standing, to which we will directly refer. This warning cannot, in justice to ourselves or to the patients, be ignored.

It is because of this latent fear of injury that, as Reuben Peterson (1924) has very recently emphasized, many conservative obstetricians have neglected what we believe is a most valuable addition to the diagnostic means at our command. This careful observer believes, with us, that there is no danger to either fetus or mother when the rays are used for short exposures only and at infrequent intervals.

How long a time is required in order to obtain good diagnostic plates of pregnancy? A few seconds only. It is the custom in the x-ray Department of the Post Graduate Hospital, as followed by Dr. Cushway, and also in our private laboratory, to make exposures of but four seconds, using a gap-spark of from four to six inches. Peterson makes an exposure of from eight to twelve seconds, with a spark-gap of from five to six inches, a focal distance of from 28 to 30 inches, the kilovoltage varying from 45 to 55, and the milliamperage from 20 to 30. Candy, of England, makes an exposure of about five seconds, using 25 to 30 milliamperes with a spark-gap of $5\frac{1}{2}$ inches. Double screen superspeed films are used in addition to the Potter-Bucky diaphragm.

It hardly seems conceivable that any damage can result to the delicate embryonic tissues or to the adjacent maternal structures from an exposure to the rays of so transient duration as this. Dr. Preston M. Hickey, head of the Department of Röntgenology in the University of Michigan, estimates that the current for ordinary diagnostic x-ray work is not more than one-fiftieth as strong as that used for therapeutic purposes, as Peterson has reported. Still, it must not be overlooked that anything may be possible in medical science. Even such a trifling exposure as this, especially if it be repeated now and then during the pregnancy, may result in such intangible alteration in the body metabolism of the embryo as to cause in varying degrees an

inhibition of physical or mental development, or both, in post-natal existence. Such a possibility has been indicated in a few authentic instances already recorded. However, only after many thousands of exposures have been made in thousands of pregnancies and the after results noted in the first decade of life in the children so exposed can any final conclusions be reached.

THE DIAGNOSTIC VALUE OF X-RADIATION IN PREGNANCY

No more positive sign of pregnancy can be adduced than the visualization of portions of the fetal skeleton. Embryologists tell us that the earliest centers of ossification appear in the fetal bones in the seventh week of embryonic life, the first one showing in the clavicle at this time. The great majority of the centers have appeared by the end of the twelfth week. Hypothetically, were there no disturbing elements to prevent the development of clear radiographs, these bony centers would appear on the plates at this time—that is, at about two months of embryonic existence. Clinically, however, this is not possible. There exist certain factors which prevent the clearness of detail that would be necessary for this early visualization. These, briefly, are the varying thickness of the maternal walls; the quantity of liquor amnii that is present; the pelvic position of the uterus, rendering it necessary for the rays to traverse a considerable distance through the maternal body before striking the fetal structures; the cartilaginous formation of the fetal bones; and the occurrence of fetal movements which would naturally result in indistinctness, distortion, and possible duplication of the fetal bones, thereby complicating the diagnosis.

Maternal obesity will evidently obstruct the passage of the rays, as will excessive muscular development in the abdominal walls. Hydramnios, by causing undue scattered radiation, will lessen the sharpness of detail and definition. Obviously, it is impossible to secure absolute fetal immobilization at any given moment. Candy largely overcomes this difficulty by using a broad calico compression-band which, if drawn taut, more or less fixes the fetus during the time of exposure.

Because of these apparently insuperable difficulties it was thought at first that it would not be possible to visualize the fetus before five

and a half months of pregnancy. With increasing knowledge of the methods of using the rays, and with improvement in the delicacy of the technic employed, and especially by the use of the Potter-Bucky diaphragm, these obstacles have been largely overcome, the shadows appearing distinctly at earlier weeks. Today, by the abdominal route, the patient lying face downward, and especially by Edling's subcoccygeal method, it has become possible to recognize fetal bony structures, notably the head and spinal column, at from 3½ to 4½ months.

The work has been facilitated in certain instances by the use of artificial pneumoperitoneum, by which method it is possible to recognize alterations in the shape of the uterus from that of the unimpregnated organ as early as the second month. There is a certain, though probably almost negligible, danger attached to the introduction of gas into the peritoneal cavity, which, together with the difficulty of putting the method into operation in the hands of the average observer, limits its applicability. In all cases it is important to avoid over-exposure, which increases the density of the picture.

The diagnostic value of radiography in pregnancy is both positive and negative. Visualization of the fetal bones is conclusive evidence of the presence of a gestation; and the older the fetus the better is the observer enabled to arrive at more or less positive conclusions as to the position and presentation and as to the presence or absence of multiple pregnancy. In those cases in which the possibility of pregnancy is denied this method of diagnosis becomes exceedingly valuable. Some estimation as to the relative sizes of the fetal head and pelvic inlet may also be obtained in later pregnancy. Radiopelvimetry, however, is still more or less in its infancy; and radiography of pelvic deformity—which is also as yet but imperfectly developed—needs further careful study. It may ultimately afford considerable help in obstetric work.

Absence of traces of fetal bones in supposed cases of pregnancy of six months or more would be as strongly a negative sign of pregnancy as their presence would be a positive sign. In this connection, Peterson regards it as almost obligatory for the abdominal surgeon to employ the x-rays before attempting a hysterectomy for supposed fibroma or myoma of the uterus, especially when such a growth is accompanied by menstrual

suppression at or about the time of the menopause. Serious and mortifying mistakes may be prevented by the observance of this very wise precaution.

It is possible to determine hyper-ossification of the bones of the fetal skull by pre-natal radiography, and thereby determine a condition of post-maturity of the child. This may be regarded as a refinement of the x-ray diagnosis of pregnancy; as may also the recognition by means of the rays of the presence of certain forms of monsters, such as anencephalus and dicephalus, before birth. J. T. Case, of Battle Creek, in 1917, was the first to report a radiographic diagnosis of an anencephalic monster, and Campbell and Willits reported the second case.

THERAPEUTIC X-IRRADIATION AND PREGNANCY

Quite a different problem arises when we consider the application of the x-rays for therapeutic purposes in women during the child-bearing period. These rays have been largely used in recent years for the control of hemorrhage due to uterine tumors or to hemorrhagic endometritis; or for the purpose of inducing a temporary or permanent castration of a patient suffering from a grave affection, as tuberculosis or Basedow's disease.

As is well known, the hemostatic action of the rays results from their influence upon the ovaries, and not upon the uterine tissues. The dosage for the purposes indicated is much greater than that required for diagnostic plates; the time of exposure is much longer; and the applications are made at frequent intervals. Thus, in order to produce a temporary castration in women, as Seitz and Wintz have calculated, the dose is from 30 to 32 per cent. of the erythematous dose; 36 per cent. produces permanent castration. There is a slight variation in these figures due to the variable ray-sensitiveness in individuals. When used either as a hemostatic or for the purpose of castration, every obstetrician and radiographer will admit the imminent possibility of danger to the child, should pregnancy exist at the time or shortly follow the therapeutic application. This conclusion is inevitably forced upon us when we compare the results obtained by numerous investigators in pregnant animals subjected to the action of x-rays and other penetrating light-rays.

This danger, it would appear, is four-fold its possibilities: 1. Will the rays result in a

temporary or permanent sterility of the woman from a destruction of the germinal elements of the ovary? 2. Will the follicles, if not destroyed, be so injured or altered as to result in the development of abnormal offspring showing imperfect or defective growth of the whole or parts of the embryos, or even in the formation of monsters? 3. Will the growing embryo be so damaged as to result in embryonic death and early abortion? 4. Or, finally, will the fetus, apparently normal at birth, show defects in its postnatal development; or, if the irradiation has occurred in late pregnancy, will it show disturbances of metabolism later in life? These are the obstetric and fetal possibilities which only the accumulation of large numbers of clinical reports can finally determine.

That these dangers are not purely hypothetic, the report of Bailey and Bagg, of New York, in 1923, of unfortunate results following irradiation in pregnancy, will testify. These observers have compiled the following authentic cases: Aschenheim (1920), the premature delivery at the eighth month of an imbecile child with microcephalus and nearly complete blindness, in a woman who had been irradiated for uterine myoma during early pregnancy; Warner (1921), twenty-four pregnancies in seventeen women treated by irradiation for menorrhagia and myoma, with nine abortions and three children showing deficiency in weight and height in from six to eight years' time; Stettner (1921), an infant, born at term, showing deformity of the ears, eyes, and genitals and a general disturbance of coördination, followed at two years of age by abnormality of the mental functions with delayed ossification and retardation of growth sixteen months below normal; Clark and Keene (1922), four miscarriages in seven patients, three occurring in one woman, following irradiation in early pregnancy; Berkley (1922), a case of infantile x-ray alopecia present at birth; Archangelsky (1923), early abortions in seven cases after irradiation, histologic examination of the embryos showing destructive changes in the central nervous system. To these cases collected from the literature, Bailey and Bagg (1923) add three cases of their own, as follows: A woman irradiated during pregnancy, who gave birth to a child with spina bifida and double club-foot; another who became pregnant after irradiation for Hodgkin's disease and gave birth to a child

with malformation of the head, including an open sagittal suture with exposure of the brain; and another who conceived after irradiation for uterine fibroid and was delivered at term of a still-born fetus.

To these reports we can now add the case of Ramos and Bazán (1924), of a woman, radiated for a sacro-epitheliomatous metastasis in the mediastinum during early pregnancy, who was delivered at 8½ months of a child whose skull-bones showed islands of defective ossification; in a few days the child developed a desquamating erythrodermia covering the entire body but most pronounced on the scalp; and that of Naujoks (1924), of a woman upon whom oöphorectomy was performed for cancer followed by irradiation. Soon after she was found to be pregnant and was delivered at term. At the age of two years the child is a dwarf idiot with microcephalus. Dr. Grulee, of this city, in a personal communication, reports the case of a woman who had been taking x-ray treatments of the ovaries for sterility when she discovered that she was three months pregnant. The child was born at eight months; it weighed but 5½ pounds; never talked; could stand only when holding onto something; was admitted to the Presbyterian Hospital when 18 months old suffering from severe convulsions and laryngisms stridulus which ended fatally the same day. Necropsy showed the right half of the brain to be much smaller than the left, and the falx cerebri pushed over to the right; microgyria was marked on the right side.

From these case-reports it seems permissible to concur in the conservative conclusions of Bailey and Bagg. These authors believe that irradiation during early pregnancy may produce death and abortion of the fetus; and that irradiation during late pregnancy is not so likely to produce gross developmental abnormalities in the child at birth, but may cause retardation of growth subsequent to birth. They believe that irradiation of the ovum during early pregnancy should never be permitted, and that in later pregnancy it should be resorted to with extreme care.

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RECENT PROGRESS IN SEWAGE DISPOSAL IN ILLINOIS*

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Within the last three years a number of notable sewage treatment works have been installed or are being installed in the state of Illinois. They rank as important plants not only in this country but in the world. They are being watched by engineers and health officers in this country and abroad and it is quite probable that operating experience gained at these several installations will increase confidence in sewage treatment as a means of restoring streams to a clean condition so that they will support fish life and no longer be a nuisance. With this confidence will come a more insistent demand for a cessation of stream pollution.

Heretofore a great many sewage treatment works have been installed throughout the state, but they have all been small works often poorly designed and almost universally neglected after their installation. The result has been to reflect discredit on the efficacy of sewage treatment or at any rate cause the public to take a hopeless view and accept polluted streams as a necessary evil.

The new works are on a large scale, carefully designed in the light of the best available experience and experimental information and will be operated under the direction of trained engineers also skilled in chemistry and biology.

Calumet Plant. The largest of the new sewage treatment plants is the Calumet plant of the Chicago Sanitary District, located just west of Lake Calumet. This plant is designed to serve a population of 150,000 and an eventual tributary drainage area of 18,000 acres. The present installation provides for clarification only, inasmuch as this is a sufficient degree of treatment to meet present needs. Later on, however, secondary treatment will be required and the plant is so designed that secondary treatment may be added at minimum cost and minimum difficulty. Furthermore, the entire plant is so arranged that extensions for the purpose of increasing the capacity can be readily made.

The principal features of the plant are a screen and grit chamber and a battery of 32 Imhoff tanks with accompanying sludge drying

beds. Each tank is of a size to provide a retention of the sewage for 2.9 hours on the basis of $1\frac{3}{4}$ million gallons flow per day per tank, which is a normal rate. The sludge storage capacity is 2.3 cubic feet per capita.

The sludge beds are designed on the basis of 0.33 square feet of bed area for every person. This is a rather limited area but ample provision is made for extension.

Inasmuch as further treatment for providing a more completely purified effluent will be required in the future, it has been deemed wise at the present time to utilize two of the 32 tanks as activated sludge tanks, to add necessary settling tanks and sludge drying equipment and to install $\frac{3}{4}$ of an acre of sprinkling filters together with accompanying secondary settling tanks. It will thus be possible to try out these two processes comparatively on a full size experimental scale and on the actual sewage to be dealt with. The results of these experiments will show conclusively which of the two processes is the more economical and which produces the best results. It is to be noted also that the design of the Imhoff tanks is such that should the activated sludge process prove preferable to sprinkling filters, then all the tanks may be converted into aeration tanks by merely putting in false bottoms.

This plant is provided with a large laboratory and an ample technical force not only to control the daily routing operation of the plant but also to carry on tests and experimental work.

Decatur, Illinois. The next largest plant is the sewage treatment plant at Decatur, Illinois, which is designed for a population of 60,000 people. This plant is being built to relieve gross pollution in the Sangamon River below Decatur. The problem at Decatur is somewhat complicated by the presence of wastes from a large corn products works, which wastes are large in volume and high in organic matter. Furthermore, the organic matter is in a form that is much more resistant to biological decomposition than is ordinary domestic sewage. However, it was found as a result of preliminary experiments that when the corn products wastes and the city sewage are mixed together, the mixture is amenable to treatment by methods adaptable to the treatment of domestic sewage, but somewhat more conservative rates of application of the mixed sewage and wastes are necessary.

The Decatur plan comprises a grit and screen

*Read at the Annual Meeting of the Illinois State Medical Society at Springfield, May 7, 1924.

chamber, Imhoff tanks, sprinkling filters and settling tanks.

The Imhoff tanks are of sufficient size to provide retention of the sewage for a period of two hours based upon the normal flow of sewage and with sludge storage capacity of 2.87 cubic feet per capita. The sludge bed area is .67 square feet per capita.

The plans call for 6 acres of sprinkling filters with an average depth of 5.78 feet. The population loading will thus be 10,000 people per acre or 1,730 per acre foot. These rates are very conservative and are made so on account of the presence of corn products wastes. Owing to limitation of funds only one-half of the area of sprinkling filters called for in the plans has been installed so that on the basis of the present population of 43,000, the loading will be in the neighborhood of 14,300 per acre, which is still a conservative figure and is expected to give quite acceptable results for a period of 5 years in the future and perhaps even longer.

An experimental plant has recently been placed in operation to determine the possible advantage of activated sludge as a preliminary process to the present filters. If found successful and economical it will be substituted for the proposed additional filters. One of the advantages anticipated from this arrangement is minimizing the rather strong odors of the corn products wastes.

The final sedimentation basins are circular in form and retain the sprinkling filter effluent for a period of about one hour. The basins are provided with revolving plows, an adaptation from gold refining practice which continuously removes the sludge from the basins and delivers it either to drying beds or back to the Imhoff tanks for digestion. The sludge accumulated in these tanks is principally humus, which flakes off from time to time, from the stones in the sprinkling filter beds.

The Des Plaines River Plant. The next plant of importance is the Des Plaines River activated sludge plant of the Chicago Sanitary District, located at Broadview, Illinois, near the new Speedway Hospital. This plant is designed for a population of about 40,000 people and comprises coarse rack screens, grit chambers, revolving fine screens, 4 aeration tanks, 13 sedimentation tanks, 6 sludge concentration tanks, a building housing a variety of presses and driers for

dewatering of sludge and a building housing pumps, blowers, air filters and laboratories.

This plant has been very flexibly designed and provided with elaborate means for measuring and controlling every operation so that it is in effect a large experimental plant as well as a plant for actually treating the sewage for a group of suburban towns lying along the Des Plaines River. Since the installation of this plant, it has been more or less remodeled to provide for trying out new modifications in the process and new details of design. The results obtained through the studies and experimental work carried out at this plant have been utilized in preparing the designs for the North Side sewage treatment plant of the Sanitary District, which is to be capable of handling the sewage from a population of 750,000 to 800,000 people. The preliminary contracts for this plant have already been awarded and the total estimated cost is in the neighborhood of \$16,000,000.

The Des Plaines River plant occupies a tract of about 25 acres on the west side of Des Plaines River. The sewage is collected from the various villages in a 66-inch intercepting sewer which cost approximately \$580,000. The sewage which is delivered at the plant site at a low elevation must be pumped through a total lift of about 32 feet, including friction in pipes. The pumps as well as the air blowers for furnishing air to the activated sludge process are housed in a handsome brick building with stone trim and steel frame work. The equipment is all driven by electricity obtained from the Sanitary District power plant at Lockport.

The fine screen is a circular disc 14 ft. in diameter, shaped somewhat like a hat. It revolves slowly while the sewage passes over it. It is inclined so that in revolving only a part of it is in the water. As the screen plates emerge from the water they are cleaned by means of revolving brushes. From the fine screen the sewage passes to the aeration tanks, which are of different dimensions and with different arrangements of air diffusion plates. So-called "filtrose plates" consisting of ground quartz cemented together is used for diffusing the air at the bottom of the aeration tanks. The air comes through the plates in extremely fine bubbles which cause the tanks to have an appearance of boiling. Each plate, which is about one foot square, will pass 10 to 14 cubic feet of free air per minute.

The retention period in the aeration tanks may be varied at will, but normally is about 5 hours. From the aeration tanks, the sewage goes to the sedimentation tanks, where the sludge is settled out and removed by means of the Dorr thickeners. A portion of the removed sludge is returned to the incoming screened sewage and the excess is taken to the storage tanks, where it is stored and prepared for dewatering.

Several types of sludge presses and driers have been used at this plant with a view to determining their relative merits. The dried product thus far has commanded a reasonably good price as a fertilizer.

The effluent from this plant goes into the Des Plaines River above Riverside. Until the plant was built the river at and above Riverside was exceedingly foul and rendered unfit for pleasure purposes, for which it is ideally adapted by nature in this general locality.

The total cost of the Des Plaines River plant was approximately \$1,000,000. This is a high cost for a plant of this capacity, but bearing in mind its elaborate and experimental character, the cost is not out of line.

Urbana-Champaign Sewage Treatment Plant. The sewage treatment plant at Urbana-Champaign was built for the purpose of eliminating pollution from Salt Fork, a small stream which drains the two cities of Urbana and Champaign. The plant is designed to take care of a population of 45,000 people. The present population using the sewers of the two cities is 33,000.

The problem at Urbana-Champaign is not complicated by industrial wastes as at Decatur. The sewers of the two cities are on the separate plan so that the sewage is uninfluenced materially by storm water.

The plant comprises a screen chamber, a battery of 6 Imhoff tanks and sprinkling filters. Owing to limitations of funds, final sedimentation basins of the usual type could not be installed, but for the time being the effluent will be discharged into lagoons so arranged that they may be cleaned periodically.

The Imhoff tanks are designed to provide a retention of sewage for about 3 hours. The sludge storage capacity is 2.32 cubic feet per capita. Sludge beds are provided with an area of .67 square feet per capita. There are 1.67 acres of sprinkling filters 10 feet in depth. A population loading on these sprinkling filters is

26,900 per acre or 2,690 per acre foot. The large loading reflects the normal character of the sewage as compared with the loadings used at Decatur.

The plant is being installed at a cost of \$427,000.

Elgin. Sewerage improvements have recently been authorized at Elgin, Illinois, for the purpose of reclaiming the Fox River below Elgin. The details of this project are now being worked out, but in a general way it will be an installation similar to that at Decatur and Urbana-Champaign. The total improvement involving intercepting sewers will cost in the neighborhood of $\frac{3}{4}$ of a million dollars.

There are some recently completed small sewage treatment plants in the vicinity of Chicago, some of which will have good operating control, notably four plants recently completed for the North Shore Sanitary District. These will be of particular interest to the smaller cities as showing what may be accomplished on a relatively small scale.

Other cities are actively considering treatment of sewage, among which are Springfield, Peoria, Galesburg and Belleville. Preliminary reports on these cities have been recently completed.

With the completion of all the plants spoken of in this paper, Illinois will become the point of greatest interest in the United States with reference to sewage disposal. Health officers and other medical men interested in public health and public cleanliness will find it both interesting and profitable to follow operating results. If these operating results prove as good as is confidently expected, then a new era in the restoration of clean streams and fish life will have begun in the Mississippi Valley.

ULTRA VIOLET LIGHT THERAPY IN A FEW NOSE AND THROAT DISEASES

A. B. MIDDLETON, M. D.,

PONTIAC, ILL.

When light is passed through a glass prism, it makes a spectrum dividing the rays into seven colors. At one end of the spectrum are red rays of long and longer wave lengths the farther we go, while beyond the visible red rays we still have invisible ultra red rays. At the other end of the spectrum we find violet rays, and likewise beyond the visible violet rays we have invisible

ultra violet rays of shorter and shorter wave lengths the farther we go.

Light and electricity were formerly taught as separate subjects; but today, light is regarded as an electromagnetic phenomenon, and considered one form of electricity. The electromagnetic waves of different wave lengths have different properties. The shortest known today are the gamma rays of radium, which are measured in quintillionths of an inch, while waves utilized in wireless and radio transmission often reach many miles in length.

The ultra violet are chemical rays and have a definite chemical action. If allowed to shine upon the skin they will produce a sunburn, providing the time of exposure is greater than the skin's resistance. It was once thought that sunburns were due to hot waves of light, but it is now known to be the contrary. It is the cold, invisible ultra violet light rays which produce the sunburn. This is easily demonstrated by laying a piece of ordinary window glass over a portion exposed to sunlight; the skin beneath the glass will not sunburn, while the exposed area beyond the glass may even blister. Glass is transparent to the visible light and heat waves of the sun, but it stops the ultra violet rays which cause sunburn. All energy of the animal body comes from the sun in the form of light energy, which is the greatest synthetic agency on the earth's surface. Light also brings about the synthesis which underlies all vital processes. With its short wave lengths, it picks out the very bonds of the atoms themselves, known as valence electrons, tears away from, or injects them back into the atom, which makes light waves a much more powerful chemical agent than heat. If a mixture of carbon dioxide and water is illuminated by the light of a mercury arc in a tube of pure silica, the light, being particularly rich in ultra violet rays, the mixture quickly develops oxygen, carbon dioxide, carbon monoxide, formaldehyde and hydrogen peroxide, this reaction continuing, only to the point of equilibrium and never becomes complete. The energy of ultra violet light rays, when absorbed by the skin, is a powerful energy in the general system. Oxygen is particularly sensitive to the action of these light waves, and many organic compounds oxidize in this light when in the presence of oxygen, but are stable in this same light, providing oxygen is absent; therefore, light is our greatest potential energy,

it puts into the circulation pure oxygen formaldehyde. Ultra violet light therapy is not new; it has been in use for thousands of years, but during the past fifty years marked attention has been given to its therapeutic possibilities. Lamps extremely rich in ultra violet light waves have no advantage over natural sunlight, except that this form of light is always available, and thus can be given in much larger doses, in a shorter time, than is possible with sunlight. The recovery in some cases from this form of therapy often sounds like a fairy story. I will confine my remarks to ear, nose and throat cases, yet ultra violet rays act equally as well in many constitutional and skin diseases, such as psoriasis, varicose ulcers, acne, keloid, eczema, tubercular sores and tubercular bone conditions. Old chronic discharging ear cases following scarlet fever, or other children's diseases that have tormented every medical man here during his practice are now being cured with ultra violet light rays. In these cases the organisms are destroyed in a short period of time, the red blood cells absorb the rays, which charges them with oxygen formaldehyde and they are distributed to every part of the ear.

Toxines are broken down in the same manner that germs are destroyed, organic compounds are neutralized after absorption and transmission, the reaction shows an increased hemoglobin normalization of the white blood content, an increased flow of blood and lymph, a distinct relief of congestion, marked tissue nourishment, free elimination of waste products, and a direct soothing action on the whole nervous system. Acute colds, whether in the head or chest, are immediately benefited by simply throwing the ultra violet light rays into the mouth, throat and nose, often after the second treatment the patient will say they feel as though they have fully recovered. Cases of osteomyelitis of the jaw, referred by dentists for surgical treatment, have been cured with ultra violet light rays as well as apical abscesses near dental bridges.

Acute frontal sinusitis responds quickly, recovery taking place without operative interference; the intense headache stops in less than one hour, pus becomes thinner, drainage easier, and a normal ventilation is resumed, yet chronic sinusitis requires many treatments. Last winter three doctors in my section of the state, all of whom looked upon ultra violet light therapy as more

or less of a humbug, each developed an acute frontal sinusitis, after using every known remedy and suffering three or four weeks, they presented themselves for treatment, stating they had no faith whatever in the chemical action of ultra violet light, but were willing to try anything once, as they had reached a point where they could not continue practice much longer without help, surgical or otherwise. The first doctor within thirty minutes, after a ten-minute exposure in each nostril, stepped about the office like a boy in his first pair of boots, saying he never felt better in his life. The second M. D., who had walked the floor two nights before, after a ten-minute exposure, lay down on a couch at 9 a. m., fell asleep, and did not waken until 4 p. m. The third went directly home and in less than one hour his wife called, saying she feared something must be wrong with the doctor; he has been asleep over thirty minutes, and is snoring something terrible. I recite the history of these cases because they are medical men, in active practice without selfish motive in view, yet others with the same ailment have the same experience. Three or four treatments as a rule give complete relief.

Acute tonsillitis likewise fades away quickly under radiation. But it is to be borne in mind that the tonsil represents two entirely distinct types of tissue; 1, a relatively elementary low grade lymphoid tissue, constituting the true glandular portion, and 2, a much more highly organized fibrous tissue, constituting the trabeculae and capsule, i. e., the supporting structures, which surround and give form to the organ.

Of these two types of tissue, the lymphoid alone furnishes incubation and soil for septic infection. The fibrous tissue is not susceptible to ordinary infection, as is demonstrated in the case of adults, who have never had subjective or objective, local or systemic symptoms of tonsillar disease. The tonsils in these individuals present an ideal picture of the normal physiologic absorption, of lymphoid tissue, the fibrous tissue alone remaining in the small firm nodule, which represents the tonsil in the healthy adult. The excess lymphoid tissue in the tonsil is an embryonic element, and should have been absorbed by the time adult life is attained.

In those cases where absorption by normal process does not take place, and lymphoid tissue remains, perhaps becoming diseased, and in any

case constituting a menace to health, surgery is able to remove this superfluous and threatening tissue only by a complete extirpation of the entire tonsil, which involves not only the removal of the undersirable lymphoid tissue, but with it the harmless and helpful fibrous tissue. Now radiation, on the other hand, offers a more excellent way. It dissolves and sterilizes the lymph tissue, at the same time aiding metabolism effectually and permanently cleaning up the areas which afford a harboring place for foci of infection, while it leaves the fibrous tissue intact as a protection against further invasion by bacteria, which can and do penetrate the mucous membrane. The judicious application of focalized ultra violet light from a water-cooled quartz lamp to the tonsil and fauces sterilizes the surfaces and promotes reconstructive metabolism in the remaining tissues. These light waves are also absorbed into the blood stream through the capillaries, bringing about needed blood changes. There are many fundamental reasons for seeking a better solution to the problems of tonsillar infection than tonsillectomy, chief of which is the disappointing fact that in a large percentage of instances (perhaps the majority of instances) tonsillectomy does not solve the problem. Yet tonsillectomy must be used in a large per cent of cases which are too far advanced for beneficial radiation therapy.

When all is said and done, and every concession made to the value of tonsillectomy and the skill and thoroughness of the operator, by this operation only a portion of the offending tissue is removed, and, as previously pointed out, a good deal of unoffending and useful structure is sacrificed.

Radiation meets both the positive and negative requirements of the situation more adequately than any other procedure at the present time. Its advantages are: 1. None of the contraindications to tonsillectomy have any deterrent influence upon radiation. On the other hand, patients in whom surgery is contraindicated can be safely treated with radiation.

2. The disagreeable and often times serious after results of tonsillectomy are entirely absent in radiation. This exemption includes shock and depressant effects, which always immediately follow the operation. Radiation improves the patient's general health and resistance from the

first. This is one of the earliest noticeable effects of the treatment.

3. Radiation reaches not only the tonsils themselves, which are but a portion of the infected tissue, but all of the adjacent and surrounding lymphoid tissues of the pharynx and lingual areas, cleaning up the entire seat of infection, and thus does actually solve the problem at issue, producing the systemic results for which the treatment is undertaken.

4. Radiation removes only the infected lymphoid tissue, leaving the harmless and useful fibrous structures intact, and cannot possibly produce any scar tissue or throat deformity.

Radiation must not be looked upon as a cut and dried treatment for every tonsil case, as each case is a law unto itself. It is only a short time until there will be a marked reduction in the number of tonsil enucleations.

Atrophic rhinitis, that stinking nose disease, sweetens up under radiation and is not troublesome to the patient, but they are obliged to take at least one treatment each month.

Hay fever patients receive instant relief and if treated once each week are able to go out nights, like other people. Their relief is not permanent, the trouble returning each year, but fortunately less severe. Therefore, in closing, please bear one thing in mind, ultra violet light rays produce nothing more than a chemical change, charging the red blood corpuscles with oxygen formaldehyde. This powerful disinfectant kills germs, breaks down toxins, restores the blood and cellular tissue to a normal metabolism.

DISCUSSION

DR. C. F. BURKHARDT, Effingham: I was very much interested in Dr. Middleton's paper for the reason that I have been using the quartz lamp since about the first of January and I must say that he is really responsible for my purchasing one of these outfits. I will say that I am very much pleased with it but to be absolutely frank about it, I have not been able to get the results out of these old chronic ear conditions that Dr. Middleton claims he has been getting. Perhaps it is due to my faulty technic in using this light; but the cases in which I have been getting the best results with the treatment are throat conditions, especially chronic pharyngitis and chronic laryngitis. In those conditions I have been getting some very nice results. I have also found that in acute conditions in the tonsils you sometimes find an acute ulceration on the pillars. I notice that they clear up very readily with the light treatment.

I have also secured nice results in infective hyper-

trophied turbinates where there is hardly sufficient hypertrophy to remove, and where the patients do not want them removed.

I also agree with the Doctor in regard to the frontal sinus and would like Dr. Middleton to tell us a little more about his technic of ear treatment, especially with reference to suppurative ears.

DR. JOSEPH C. BECK, Chicago: I have fought this light proposition for a year or more and refused to put a machine like that into the place until Frank Novak came along and showed me that it was really good for something and that something was in the cases that come in great numbers to the rhinologist, viz.: the suppurative nose, the hyperesthetic nose, the water-logged nose. They are certainly wonderfully influenced by the use of this light both in the nose or, rather, generally. And it seems that the work of Dr. Middleton ought to be taken up from a much wider and greater aspect, the general conditions as I look upon this nasal condition in many of these nose and throat conditions as local manifestations of general conditions.

I think that the Doctor's report is very interesting and is proved by other men going into this thing and doing the same thing. But it seems to me that he has reported mostly acute conditions. We are dealing mostly, I think, with chronic conditions.

But gentlemen the underlying pathology is against all possibility of this ray or that of any other ray doing away with fixed pathological states. Do not expect too much from this sun-light or any other rays.

CONGENITAL PYLORIC STENOSIS. REFEEDING A METHOD OF TREATMENT AND OF POSSIBLE PROPHYLAXIS*†

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CHICAGO

The treatment of so-called congenital pyloric stenosis is of particular interest because it illustrates two relatively new principles of therapy.

The first of these is the clinical predominance of physiology over pathology; that is, the therapeutic importance of function over structure.

The second is the appreciation that the welfare of the whole baby is more important than that of any one of its parts.

Both medicine and surgery are pretty well agreed as to the first of these principles. The present-day surgeon operates more to restore function than to repair structure. To the surgeon and the roentgenologist as well as to the pediatrician, we owe much of our newer knowl-

*From the Northwestern University Medical School and the Michael Reese Sarah Morris Hospital for Children.

†Summary of paper read at the Jackson Park Branch of the Chicago Medical Society, November, 1924.

edge of pathologic pyloric physiology. On the pediatrician, however, rests the responsibility of developing and applying the second principle. Surgery by its very nature—it being a form of mechanico-therapy—must concentrate upon a local lesion, attempting to correct the abnormalities in both structure and function. The surgeon sees the patient only during periods of injury, deformity or crisis. On the other hand, the modern pediatrician sees his patient immediately after birth, and by constant supervision attempts to keep him well. The pediatrician is in better position to consider the welfare of the baby as a whole, and to estimate the effects of any local abnormality. *In doing so he has learned that many abnormal conditions, such as diarrheas, digestive disturbances and even eczemas may improve proportionately to the improvement in the general condition of the child.*

THEORIES

During the last decade, our knowledge of that condition known as congenital pyloric stenosis has been enriched by several theories, each with a basis of some fact.

1. A mass of hypertrophied muscle forms a mechanical obstruction around the pylorus.

2. A mass of hypertrophied muscle tissue, by its very presence, leads to spasm of the pylorus.

3. The entire symptomatology may be due to pure muscular spasm of the pylorus and possibly even the stomach. For etiology, there may be:

(a) Some mechanical irritant in the musculature or the serosa.

(b) A reflex from an inflamed adjacent organ.

(c) A pathological constitution, as vagotonia or spasmophilia.

4. A prolonged spasm from any of the above causes may lead to muscular hypertrophy.

While each of the above has been advanced in theory, there is probably an element of truth in all and I have no doubt that as our knowledge increases, we shall find an identical symptomatology produced by any one of a variety of different factors. However, without going into detail concerning the mass of argument and evidence, it becomes a good working hypothesis to consider every case as one of spasm.

Some fifteen years ago, practically every case of obstinate vomiting with loss of weight, con-

stipation and peristaltic waves, was considered due to tumor. These fifteen years have revealed this syndrome so frequently in infants with no tumor, that the present day tendency is to consider the part played by the tumor *per se* as almost incidental. Consisting, as it does, of hypertrophied *normal* muscle, I regard it as essentially harmless. Any harm results only from the associated spasm. In other words, if the symptoms are overcome, the tumor may be overlooked.

PRINCIPLES IN TREATMENT

Until the present, all efforts at therapy have concerned themselves with the first of our two principles. Pediatricians by medication and diet, and surgeons by the scalpel, have attempted to improve the function of the pylorus. Few, however, have attempted this by treating the child as a whole.

It occurred to the writer that in the non-operative treatment, the spasm might better be influenced by the use of the second principle. The best index of the infant's general condition is his weight curve. The treatment then ignores any such local symptoms as vomiting, peristaltic wave, delayed emptying time and even tumor, but must make the child gain in weight. *It is remarkable to note that, coincidental with the rising weight curve and improved general condition, the local symptoms gradually and certainly will disappear, and the child's recovery be complete.*

The non-operative treatment must of course take both principles into consideration.

1. An attempt to influence the spasm.

As local spasm is in a way largely dependent upon the general condition of the nervous system, we must consider the influence of the environment. In this respect no single factor is as valuable as a calm unemotional nurse. A nursemaid often may be more satisfactory than a highly trained but highly strung hospital nurse. Treatment in a hospital ward, due to constant changing of nurses is not ideal, though I have seen cases of obstinate vomiting improve remarkably when the child was taken from the home of a very nervous mother to the private room of a hospital.

Drug treatment also consists of quieting the child's general nervous tendencies. Paregoric and bromides are indicated.

As regards any definite effect of drugs upon

the local spasm, I am somewhat skeptical. Papaverin has its disciples. Haas believes atropine a specific. Whether these drugs really act locally is not certain. Perhaps their action is also general, as in conditions such as vagotonia.

2. A direct attempt to improve the general nutrition.

Here are two indications:

(a) To keep the stomach free of stagnating food.

(b) To get food through the pylorus in any way, shape or manner possible.

To prevent food stagnation, it is self-evident that if the pylorus admits any food at all, a considerable number of feedings small in quantity will leave less residue than a small number of feedings large in quantity. The other indication is also met, for with such a schedule more food enters the body in twenty-four hours. *I believe unquestionably that these babies should be fed every two hours rather than at longer intervals.*

REFEEDING

To get food into the intestines, I have reasoned as follows. If the symptoms are caused primarily by spasm of the pylorus and possibly of the stomach, in the period following such a spasm, there must be a temporary muscular relaxation. This would be the ideal time for the bottle. Suppose one offered a small quantity of food, waited to see this food rejected by the customary gastro-pyloric spasm, and then after vomiting had ceased, offered more food? This idea must have occurred to others, but I have seen no definite mention of it in the literature. *It is surprising and gratifying to note how frequently the second feeding is retained following rejection of the initial portion.*

The nature of the food has been the subject of great discussion. Of all foods recommended, the most successful has been thick cereal. Hans Hahn in 1911 used it for a case of nervous vomiting. Ibrahim refers to Birk who used it for the first time in pyloric stenosis in 1913. In this country, McClure in 1914 applied the idea to a case of nervous vomiting, and later Sauer to pyloric stenosis. I believe that thickened cereals, due to their consistency will be vomited less than other feedings, but I do not consider them as an absolute essential. If the doctor adheres

patiently to any one particular diet and persists with refeeding, the child will usually get well.

A variation of the above technique has also given fortunate results. For the first five minutes, give the baby a nipple with a very small hole. If the patient is breast fed the milk may be expressed and fed from a bottle. During these minutes, the child exerts himself as if his gastro-pyloric musculature were endeavoring to reject the small quantity of liquid taken. Then a nipple with a larger hole is substituted. *The child will often retain the second portion of the feeding.*

A trick which some pediatricians have employed to facilitate the passage of food, is to place the child upon its right side. During any period of pyloric relaxation, some food may escape into the intestine.

Keeping the stomach clean and refeeding may be combined as follows. It has long been noted that stomach washings are of value, but the stomach tube is exhausting to these little patients, irritates the mouth and throat and possibly produces nausea. Spontaneous vomiting, on the other hand, gives no subjective symptoms. In this refeeding technique, the initial feeding may be used as a sort of stomach wash. Thus if an infant were on ten feedings of one and one half ounces, a preliminary feeding of one half ounce may be given. If this is vomited, the stomach is emptied of its contents, and after ten to fifteen minutes is in a condition more receptive to the remaining ounce. If the food is retained, so much the better, for every ounce of food assimilated, is a factor in the child's recovery. If the baby is breast fed and there is no food to be wasted, the initial feeding may be simply water.*

There is no limit to the number of devices which may be employed to get food through the contracted pylorus. It is largely a question of the ingenuity and common sense of the doctor and the nurse. But one thing is certain. *If enough food in any way, shape or manner can be got into the intestine, all symptoms will disappear in proportion to the rise of the weight curve and the child will get well.*

Scarcely one decade ago, pyloric stenosis led to death from starvation or to almost certain

*This technic possibly might be used for some types of the vomiting of pregnancy. I have suggested it to some of my obstetrical friends and they have reported some success. One or two glasses of lukewarm water before the meal empties the stomach, and after this vomiting, there is little nausea, and the meal proper is retained.

death from gastro-enterostomy. Both the Rammstedt operation and the more skillful use of cereals have given remarkably fortunate and remarkably parallel results. The mortality from a number of different surgical reports averages 10.6%, from a number of non-operated medical reports, 10.2%. A. Strauss, with a modification of the Rammstedt technique claims a mortality of 2.7%. Ibrahim with non-operative treatment claims 1.9%. It is clear that there is little to choose as to method.

PROPHYLAXIS

There is however another way of approaching the problem. The idea that the condition is primarily one of spasm has long appealed to me. The observation that all types of chronic vomiting recover with a rising weight curve should not be overlooked. If the case is primarily spasm, any neglect of the condition should lead to its intensification. If a rising weight curve heralds recovery, early treatment might effect a possible prophylaxis.

With this idea in mind, commencing ten years ago, I treated every case of obstinate vomiting as a case of potential pyloric stenosis. I assumed that if the condition were allowed to persist, a more pernicious syndrome would develop. Many of these infants showed symptoms which would have lead to the diagnosis of congenital pyloric stenosis. Vomiting was projectile, weight was stationary and peristaltic waves frequently present. In a few not seen at the onset, the x-ray showed degrees of retention usually considered absolute indications for operation. In six of the latter, the parents had refused permission for operative interference. These as well as all the other vomiting cases made absolute recoveries. In every one, the recovery has been sure and permanent. Whether hypertrophied muscle still exists in the pylorus of these children is not known, for the children are alive and well. Possibly remains of the tumor persist, but so do the scars of healed tuberculosis.

In the light of our broader knowledge of today, I have no doubt that many of the early cases showing symptoms typical of pyloric stenosis were cases of nervous vomiting, pure pylorospasm, muscular incoordination or vagotonia. If these had been untreated, would they have developed tumor? That, of course, is an open question, but of one thing I am certain. If they

had remained untreated, they would have developed a spasm of more marked degree.

By no means do I wish to state that no patient should be operated on. The occurrence of pyloric tumor in a seven month's fetus suggests that some patients are born with well-marked pyloric hypertrophy. Though this may be true, I do believe that if one starts active treatment early, one may prevent the development of the more dangerous associated spasm. The pediatrician as well as the surgeon must see these patients before it is too late. I believe that if one practices this sort of prophylactic idea, and, independent of any local symptoms, insists upon a rising weight curve, the more severe cases will be fewer and fewer.

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INTRA-PERITONEAL INJECTION OF FLUIDS IN INFANTS—FOR THE GENERAL PRACTITIONER*

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Intra-peritoneal injection of fluids directly through the abdominal wall into the peritoneal cavity, is a measure which has been developed only recently, but is being widely accepted as a therapeutic measure of definite value. The first reference to it in the literature is by Blackfan and Maxey¹ in 1918, who state that Howland saw it used on Prof. Garrod's service in St. Bartholomew's Hospital, London. In the few years which have followed there have been numerous other reports, practically all of which have been favorable.

Much of the data thus far published has been upon infants, but the procedure need not be limited to those so young, although its greatest field will probably remain in the first two years of life.

Considering the methods available for giving of fluids to the dehydrated child; they may be divided into enteral and parenteral methods.

Enteral routes, or by the alimentary tract, are three in number:

By mouth, through the nasal tube, or per rectum. What are the objections to these methods? It is often difficult to get the child to drink any quantity, even approximately a sufficient volume of liquids, whether fed by spoon, bottle or glass.

*Read before Section on Medicine, Illinois State Medical Society, Springfield, May 7, 1924.

And the little that is taken, is often vomited. The nasal tube, using a soft rubber catheter, size 8 or 9 French, is better, allowing for careful control of water given, but still not having control over that lost by vomiting. Rectal administration of fluids, whether given in volume or by drip or similar methods, is unsatisfactory, because diarrhea is often present at the start, and even if it is not present, rectal intolerance is quickly established in smaller children.

Parenteral routes, or those outside of the alimentary tract, are also three in number and comprise:

- Subcutaneous,
- Intravenous, and
- Intra-peritoneal.

Subcutaneous injection, or hypodermoclysis does not permit the giving of a large quantity of fluid, or if it is given several puncture-wounds must be made, each of which gives the child discomfort, and the procedure leaves the child restless and irritable, two things we wish to avoid, especially in a weak infant. The method is not without pain, and the inadvisability of frequent repetitions of the injection is apparent.

Intravenous injections include those made into peripheral veins, such as in the arm, neck, the femoral vein, or into the superior longitudinal sinus, through the anterior fontanelle. Many of these dehydrated, anemic children have collapsed veins; cutting down on the vein is often necessary, except in the femoral, and a certain amount of practice is advisable before one injects the femoral vein with confidence. Intra-sinus injections are not devoid of danger. In all of these, the entire volume injected is dumped immediately into the general circulation, and overloading of the heart must be constantly guarded against. So the volume injected must be limited and the same objections against repeated injections prevail, as in the case of hypodermoclysis.

Before discussing the merits and demerits of intra-peritoneal injections, let us first describe how it is done.

First, the apparatus that is needed; an infusion bottle or percolator to hold the fluid, connected by rubber tubing to an ordinary intravenous needle, without obturator, is all that is required. The size needle used is usually about an 18 gauge. Some use a large syringe and inject by force, but that is not necessary and perhaps undesirable. The above must be sterilized, and

the site for introducing the needle must be surgically clean, usually with tincture of iodine and alcohol. Absolute asepsis is necessary. The site chosen is usually a little below the umbilicus, in the linea alba, or at the edge of the rectus, but this place can be varied at will, just so the needle is not introduced directly over a solid viscus or one fixed by a short mesentery. The solution is injected at approximately body temperature. The patient is placed in a recumbent position, the movements of arms and legs restrained. The skin and subcutaneous tissue are picked up by the thumb and index finger, and the needle inserted at an oblique angle, pointing upward. A sharp thrust is made through the skin, and then when the peritoneal cavity is entered, the resistance to the needle quickly disappears, just as in going through the lumen of a rather large vein, or in making a lumbar puncture. The fluid enters by gravity, and usually ten or twenty minutes are consumed in its administration. The fluid is allowed to run in until abdominal fullness is noted; this is sometimes made apparent by change in the pulse or respiration before much visible distention is noted. Then the needle is withdrawn quickly, and pressure is made over the point of exit for a moment, after which a collodion seal is applied.

Indications: It will be found of value in any condition accompanied by dehydration. In infants this is often present in pathological conditions of the gastro-intestinal tract accompanied by diarrhea or vomiting, with marked water-loss; but in many conditions other than nutritional disturbances it is advisable to give water and nourishment in this manner. Marasmus, (atrophy or athrepsia) acute intestinal intoxication (known also as gastro-intestinal intoxication, alimentary intoxication, anhydremia, and toxicosis) acute ileo-colitis, acidosis, pyelitis, bronchopneumonia, and difficult feeding cases, are conditions in which intra-peritoneal injections are often indicated.

Fluids Used for Injection: Glucose in various strengths up to 10 per cent. have been used. It has several points to commend it—it is easy to dissolve and sterilize, it offers a means of giving nourishment for it has a rather high caloric value, and spares protein destruction, which is important because these weak children can ill afford to have body tissues destroyed.

Sodium bicarbonate is said to have an effect

upon acidosis; however, Marriott² has shown that the acidosis comes about in this manner: due to the dehydration, there is a diminished blood volume, which causes a decreased blood flow through every part of the body. This relative stagnation of blood leads to an accumulation of acid products of metabolism in the tissues, and a decreased alkali reserve in the blood, or acidosis. As a result, it is not necessary to give alkalis, but to simply replace the fluids, and the acidosis will disappear, because the conditions causing it are no longer present. So it would seem that sodium bicarbonate solution has no especial advantage. Some advise Ringer's solution. *However, simple physiologic sodium chloride solution, or ordinary salt solution, will probably produce just as good results in the average case.* Some claim that there is less tendency to abdominal distention following the injection of normal salt solution than after glucose or bicarbonate. The few times that I have seen any distention, it is true, have been after using glucose; this distention is temporary, however, and soon passes off.

How much fluid should one give during one injection? The amount will vary with the size of the child, and the degree of dehydration. Ordinarily the amount will vary from 150 to 400 c. c. It is not necessary to try to inject extremely large amounts at one time, because the injections can be repeated frequently—as often as every eight hours if necessary. Some patients require only one or two injections—others require many more.

Regarding the absorption of the fluid from the peritoneum, we have some rather accurate observations. Dandy and Rowntree³ in *Annals of Surgery*, have reported from 40 per cent. to 60 per cent. of phenosulphonophthalein excreted in the urine one hour after intra-peritoneal injection. This is almost as much as after intra-venous injection. Denzer and Anderson⁴ have reported a number of cases which have come to autopsy after intra-peritoneal injection and have carefully measured the unabsorbed fluid. They report as follows:

Amount	Interval between injection and death	Fluid recovered
150 c.c.	2 hrs.	60 c.c.
150 c.c.	20 hrs.	1/2 c.c.
250 c.c.	1 1/2 hrs.	150 c.c.
200 c.c.	16 hrs.	18 c.c.
275 c.c.	30 hrs.	0 c.c.
250 c.c.	16 hrs.	0 c.c.
125 c.c.	40 hrs.	0 c.c.
100 c.c.	28 hrs.	0 c.c.

By using a capillary pipette, they were able

to demonstrate the existence of very small quantities of liquid, and to determine that the fluid was completely absorbed in 12 to 24 hours by getting dry taps with their capillary pipette in that time. Then to prove that they could detect the presence of a small amount of fluid if present, they injected 5 c. c. through the linea alba and after waiting a short while, made a separate tap over in the iliac fossa and recovered fluid. They seemed to think that absorption followed whether the solution were hypotonic, isotonic or hypertonic. An isotonic solution or hypotonic is probably the safest for routine use. Blackfan and Maxcy gave a 20 pound baby 250 c. c. and 200 c. c., 18 hours and 6 hours respectively, before death, and at necropsy, only 20 c. c. could be recovered. Hertzler states that in general, if the amount injected does not exceed 10 per cent. of the body weight—about 30 per cent. is absorbed in 1/2 hour, and at the end of 24 hours less than 30 per cent. remains.

Knowing that the fluid is absorbed, the question arises as to how much is retained. If the fluid were immediately thrown off by the skin, or in the urine, feces, or expired air, the procedure would be of doubtful value. With this point in mind, I checked up the weights of a number of patients, to whom I gave injections. The weights were taken 24 hours after the injection, and I found that the average weight gain was 3.365 ounces. The size of injections given varied from 150 c. c. to 300 c. c. These were on patients who were not doing well and would certainly not have gained any amount like that. 12 different cases were figured—one case having 14 injections.

The advantages of this method are numerous: Comparatively large amounts of fluids may be given and the amount can be well controlled.

The fluids are retained.

The administration is very easy and simple. It is attended by very little danger.

The discomfort to the patient is very little, the only sensation of pain being when the skin is punctured; the patient often falls asleep while the injection is being given. This has happened time and again, in marked contrast to the discomfort caused by hypo-dermoclysis.

Toxins in the blood are diluted.

Blood volume and blood flow are increased, by relieving the high concentration.

Urinary output is increased.

Nourishment in form which can be utilized may be given, as well as fluids.

The general comfort of the patient is increased and according to Epstein⁵ the reserve energy of the body can be better utilized.

Contra-indications and precautions advised before using the intra-peritoneal route are comparatively few.

We should have the bladder empty, as it is theoretically possible that a distended bladder may be punctured.

The injection should not be made in the presence of great addominal distention—the distention should be first relieved, by the usual methods of eliminating tympanites.

Furunculosis of the abdominal wall might be so extensive as to cause a danger of infection.

Danger from penetrating the intestinal wall is much less than might be supposed: it is very hard to puncture a flaccid gut with a large caliber needle, unless of course one should go in so far as to impinge the gut between the needle point and the posterior abdominal wall. One can easily demonstrate the truth of this at autopsy by trying purposely to puncture the gut with a large needle.

Adhesions might so fix the intestine as to make puncture possible, but adhesions of intestinal peritoneum to parietal peritoneum are very rare in infancy. The fluid is usually given midway between feedings if the child is taking its feeding regularly and in any quantity.

Bearing these simple things in mind and maintaining rigid asepsis, there seems to be very little danger in the procedure.

The procedure or the claims for it should not be misinterpreted. It is contended that it will supply water to the dehydrated, and to a lesser degree,—nourishment. However, it alone, will not check a diarrhea; neither will it materially help a marasmic baby whose condition is due to tuberculosis or to syphilis, or analogous diseases.

It is not to be used only as a method of last resort, but chiefly before dehydration has resulted in serious damage to important viscera and before marked metabolic changes and protein destruction have occurred in the body.

It is simply an individual procedure to be used much more in the future. Its simplicity,

ease of administration and therapeutic value commend it to the general practitioner.

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DISCUSSION

DR. JULIUS HESS, Chicago: Dr. Crawford has given you a most admirable presentation in the way of a case for intraperitoneal use of fluids. There is very little left for me to say except possibly to emphasize a few of the points of technic and then raise the question as to the dangers.

In the first place the fluids should always be given by gravity. In the second place the child should be restrained. Third, the child should be given the benefit of a local anesthetic, a little subcutaneous anesthetic, such as novocaine or something of that type. The bladder should be emptied. The abdomen must be relieved if distended. These things we should all remember as essential to the success of the operation.

I do not remember hearing the Doctor say it could be repeated at short intervals but I think he drew that conclusion. In most instances it is absorbed in from two to six hours. We are frequently in the habit of repeating it in twelve hours, and frequently at shorter intervals than that if the child's condition demands it. As a rule the blood pressure is raised somewhere between ten and fifteen millimeters and the pulse becomes steady and slower.

The question that always arises in my own mind which I like to answer for myself in each individual case,—is this method of peritoneal administration of fluid the one of choice for the giving of fluids in the given child?

I cannot altogether agree with Dr. Crawford in the lack of danger. It so happened that I had the pleasure of having Dr. Crawford work in our clinics for something like a year and I know how painstaking and how very careful he is. Undoubtedly he avoided some accidents by that very great care which he would use in his practice. But seeing this method pursued in large institutions where we change interns every thirty days possibly, or at least every sixty days, there are dangers. When I give an intern permission, and I always require that he has permission, I always ask myself whether I would allow that intern to put that needle in my own child. This method is practically safe if you will avoid dangers and if you will be clean.

Now one thing which we have discarded in our clinic is the use of anything but a saline solution, either normal saline or Ringer's. We have stopped the use of glucose and sodium bicarbonate intraperi-

toneally. That is based on the experience of two cases that went to autopsy, sterile peritonitis, which we interpreted as being due to our hypertonic solution. Whether we are right in that I do not know. I, however, believe that the intraperitoneal route is one of the most efficient methods of counteracting dehydration that we have.

Just one thing in the practical application of the intraperitoneal administration of fluids, that is, the administration of blood. More recently, we have only had about five cases, we have put citrated blood in the peritoneal cavity in amounts varying from one to three hundred c.c. This blood is always typed beforehand. The experiments that were performed by Siperstein of Minneapolis, who has popularized the method in this country, show that about 50 per cent. of the blood was absorbed in the first eight to twelve hours so we could not repeat the blood injections as quickly as the salt solution but I think it can be safely done once in twenty-four hours for two or three administrations. You not only get the blood value but the food value as well. Whether the red cells are preserved is a question.

Yet there are dangers. Last night an intern called me up and said the patient had passed the blood per rectum and wanted to know if he should notify the staff surgeon. I told him the surgeon would in all probability refuse to enter the cavity and to sit tight. He informed me this morning that the patient showed no bad effects. That the method has its dangers is not to be denied.

DR. H. E. BLANKMEYER, Springfield: If Dr. Crawford has stated correctly that the first case of record was in London in 1918, I would like to say that America has beaten that by two years. In a service on the Floating Hospital, Boston, in 1916, one of the junior house officers was giving a subcutaneous infusion of a saline solution. The tube on the left side did not show much resistance and the bottle emptied much more quickly than usual. There was some 300 c.c. that disappeared somewhere. He said nothing about it but while passing by the next morning found the child alive and very much better.

I am confident that the man gave an intraperitoneal injection without knowing it. But we were afraid to follow it up with the happy results that we have since gotten by this means.

DR. W. L. CRAWFORD, Rockford (closing the discussion): I was very glad Dr. Hess emphasized the way he did about the care that you must use. Most of you men are handling your own cases and you will only do things to them which you would do to members of your own family and you would use that care which is necessary.

I was also glad that he mentioned the work that is being done with blood transfusion and what Dr. Siperstein of Minneapolis has done, reported recently. More work will undoubtedly be done in the next two or three years. We will know a great deal more about it and the permanent value it will have.

About the question of the type of disease in which we use this I made the statement in the article that

it could be used and would be of value in any disease accompanied by dehydration. In practicing among children I think the quickest dehydration, the most marked dehydration, comes in children who have vomiting and diarrhea. Especially in the summer time do we see a lot of it. Of course, any child may vomit from any sickness. They do that easily and they often get diarrhea from, or accompanying, ordinary illness. They often have their water reserve depleted in very quick time. It does not matter whether it is pyelitis or just the ordinary diarrhea that we see in the summer time or whether it is the so-called cyclic vomiting, as we call it, for want of a better name, or gastro-intestinal intoxication; any of these diseases will quickly dehydrate a small child and it is the replenishing of body fluids that will often keep the child alive. If we can give liquids in the ordinary way and have them retained there is no reason for an intraperitoneal injection being made but if liquids are not retained when given in the usual way then here is a method that will get a controlled amount of water into the body and it will be retained.

In the course of a year you men collectively must see a rather large number of children passing out simply because of this dehydration. Many of those that are lost because of this fact may be saved if you will use the above described method of replacing fluids.

CLINICAL BRIEFS OF ABSCESES OF THE ORAL AND PHARYNGEAL REGIONS*

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ABSCESS OF THE SUBLINGUAL GLAND

Usually abscess here is due to an infection of the gland from the secretion becoming blocked and later infected.

When no infection takes place we simply have a retention, or so called ranula, which generally subsides when the sublingual duct becomes patent.

Should the duct become blocked by a calculus there is more danger of the gland becoming infected and forming an abscess.

I have only seen two or three cases where the ranula became abscessed and they were very difficult to cure, requiring considerable time.

The symptoms are fever, pain (not severe), swelling under the tongue and interference with taking of food and speech to some extent.

The treatment is simply draining and if the discharge persists, then packing the gland, and

*Read before the Tri-County Medical Societies (of Franklin, Mary's and Osage, September 17, 1924.

if it becomes chronic the gland will have to be dissected out.

It is sometimes necessary to have an x-ray examination made to see if any calculus exists, but frequently this is of no value, even where one really exists, due to the nature of the stone and from the thick tissues around the gland.

Probing will sometimes be of value and occasionally the stone can be milked out.

What is said about the sublingual will also apply to the submaxillary only the symptoms differ from the anatomical position of the gland.

Parotitis or suppuration of the parotid gland may occur after stomatitis or rarely from suppuration of the ear.

In the bad cases they are usually secondary to severe fevers—typhoid, septic infections or septic pneumonia, etc.

The route of infection is either through the blood vessels in metastatic cases or through the duct (Stenson's) or caries of teeth or an infection through the denuded epithelium of the mouth.

The process is generally unilateral.

Symptoms are the usual ones of an inflammation, pain, swelling, tenderness, fever, sweats and immobility of jaw.

After several days resolution sets in and the abscess either opens spontaneously through the skin, or drains through the duct or into the mouth and occasionally through the external auditory canal.

Necrosis of the jaw or severe hemorrhage may occur through erosion of a vessel wall. In many cases they are terminal and then a part of the general septicemia and almost always fatal.

Treatment: These cases are ones for a general surgeon and not the practitioner. The incision should be long and deep to penetrate the substance of the gland.

Alveolar Abscess. I will not go into this in detail, as in most cases they are due to carious teeth, generally in children before second dentition.

Occasionally they will erode the floor of the antrum and produce antritis or infection of the antrum.

Often an antrum (suppurating) will burrow through the alveolar process and cause an alveolar fistula.

Have seen three cases where the alveolar

abscess caused a streptococcemia and ended fatally in a few days.

In these cases the gums become swollen and soft, the teeth all loosen and the entire buccal membrane is inflamed. This condition resembles mercurial stomatitis, but the fever is very high, the respiration simulating pneumonia and prostration is extreme.

My treatment in these cases consisted of pulling all the loose teeth, incising the gums extensively, antiseptic mouth washes, supporting treatment, but the results were disappointing, as all my cases died of general infection in a few days.

Abscess of Tongue. This condition is quite infrequent and I can only recall having seen four or five cases.

They usually occur at the base of the tongue at its central part.

They generally occur beneath the lingual tonsil in the connective tissue.

It is very painful and generally very acute and more apt to cause general septicemia or edema of the glottis than abscess anywhere else around the mouth or throat.

Etiology. Due to traumatism, chemical burns, fishbones or foreign bodies or infection from molar teeth or from oropharyngeal disease.

Symptoms. Severe pain over the back part of the tongue, increased upon movement. Deglutition and mastication painful. Fever and chilly sensations.

If the swelling around it is very great you have added some laryngeal symptoms, such as dyspnoea and hoarseness.

The diagnosis is made from the acuteness of the symptoms, location, pain, difficulty in speech, deglutition and mastication, fever, and most important the finding of a smooth rounded swelling, situated upon the back part of the tongue, and very painful.

Fluctuation can frequently be found.

Differential diagnosis will be discussed under quinsy.

Prognosis. If seen early and early incision the results are very good, but if edema of glottis occurs and a general sepsis the prognosis is very bad.

Peritonsillar Inflammation with Abscess. Quinsy Sore Throat. This, as you all know, is rather a common condition and occurs most frequently during the spring and fall months.

Probably the sudden changes in the weather.

plus a lowering of the resistance which allows the ever present bacteria in the tonsils to multiply, results in infection.

The bacteria found are usually the strepto and staphylococci. Young adults are more prone to it than very young or old people.

I have seen very few cases in children under twelve and rarely in people older than forty, although it can occur at almost any age.

In my experience, the male is more frequently attacked than the female. I have seen it immediately follow an attack of follicular tonsillitis. Most always it is unilateral, but I have seen a few cases where the second tonsil became involved before the first was entirely well. It recurs frequently.

It was generally thought that peri-tonsillar abscess was in some way of rheumatic origin, but I have never seen a case of polyarthrititis following, although undoubtedly there are such cases reported.

Another reason I doubt the theory of a rheumatic base is that cardiac valvular disease is rarely seen after peritonsillar abscesses.

My idea of the route of infection is from the tonsil, outward into the peritonsillar tissue, probably from one or more of the tonsillar crypts which penetrate deeply and when the tonsil tissue is very spongy or friable, allowing the infection to pass into the peritonsillar tissue.

In about ninety per cent of cases the infectious route is forward into the top of the anterior pillar and into the soft palate. In the other ten per cent it passes backward into the posterior pillar, producing an entirely different picture than when in the anterior pillar.

Symptoms. Sore throat, increasing from day to day, if following on a follicular tonsillitis instead of the pain or sore throat getting better it becomes worse and unilateral. There is difficulty in swallowing, increased flow of saliva, stiffness of the jaw, inability to open the mouth well, fever and chilly sensations. Temperature sometimes reaching 104°, usually 101° to 102°. Headache, loss of appetite, very painful deglutition, sometimes adenitis on the side affected.

When the swelling becomes pronounced the patient cannot open the mouth. Sleep in reclining position is impossible and food is taken with difficulty, if at all. Loss of weight is rapid. Respiration difficult. Peculiar pitch to the voice, which when heard a few times, enables one to

make a diagnosis often without an examination.

The suffering is intense for four or five days, until the abscess is opened or it breaks spontaneously.

Diagnosis: With the above symptoms and especially if the patient has had a preceding attack, plus the examination by inspection and palpation the diagnosis is generally easy. The picture of the throat is characteristic.

Unilateral swelling of the anterior pillar and palate almost hiding the tonsil. Tonsil is swollen, but one can see that the swelling is principally in the peritonsillar tissue.

In some cases the uvula becomes edematous (bladder like) and is elongated and is the principal cause for the short cough and the inability of the patient to lie down. The whole oropharynx is of a deep red color while the uvula is generally of a paler color or if edematous, opalescent, due to the infiltration of serum.

On palpation one can usually feel a fluctuation after the third to fifth day (sometimes it is a little longer), in the region of the junction of the anterior pillar with that of the soft palate.

Now to distinguish abscess in the anterior pillar from that of the posterior pillar is not so easy. In both you have the peri-tonsillar swelling, only in anterior pillar abscess the bulging and swelling is around the soft palate and top of anterior pillar, while the posterior pillar abscess is a fusiform swelling and the tonsil is not so prominent, while the anterior pillar, while swollen and red, is not so painful nor nearly so infiltrated.

Also in my experience the patient can open his mouth wider than in anterior pillar abscess and the general symptoms are not so pronounced except pain.

Differential Diagnosis.—The most usual conditions to be founded with quinsy are follicular tonsillitis upon a hypertrophy of the tonsils, retropharyngeal and lingual abscess, sarcoma and tubercular glands.

Here the fact that follicular disease occurs more often and in younger patients coupled with the exudate in the follicles or crypts, enables one to differentiate.

Should the pain and fever in an older patient, with follicular tonsillitis continue one should always suspect a beginning peritonsillar abscess.

Tongue abscess is very uncommon as compared with quinsy.

The patient probably cannot protrude his tongue as well as in quinsy.

Tongue abscess is situated over the center of the back part of tongue and feels like a rounded mass, tender to touch, while quinsy is situated in the pillars and the tonsil is much more swollen than in tongue abscess. The probability of the patient having had an attack of quinsy before is a good point in differential diagnosis.

Differential diagnosis from quinsy of the posterior pillar I have already mentioned.

One great difficulty is the diagnosis between posterior pillar abscess and retropharyngeal abscess.

This is generally easy in young children, as retropharyngeal abscess generally occurs under five years of age, while quinsy is most generally always found in older children and young adults.

Then the location of the retropharyngeal swelling and the posterior pillar appears normal as to thickness.

Again in retropharyngeal abscess the child has its mouth open while in pillar or peritonsillar abscess it is with difficulty that the mouth is opened.

The palpating finger can generally make out the swelling of a peritonsillar abscess and finding the posterior lateral pharyngeal wall smooth and with no bulging.

Sometimes peritonsillar abscess instead of rupturing spontaneously is much slower in its development and produces a severe lymphatic engorgement below the angle of the jaw, causing a distinct tumor mass.

This swelling is painful, but not nearly so painful as when the pillars themselves are involved and to my mind is due to a leak of pus from the tonsil bed itself perforating the capsule and getting out into the lymph glands and tissues of neck.

I saw about six cases of this kind and in all it was weeks before fluctuation occurred.

These cases are sometimes very difficult to diagnose from adenitis, tuberculous glands or sarcoma of tonsil or lymphangitis from a bad molar tooth or some condition of parotid gland.

In tuberculous glands they feel nodular and hard to touch and are of longer duration and there is generally a history of struma and tonsils are not swollen at that time.

In sarcoma the tonsil is very hard, is hypertrophied, no pain, no fever and the lymphatic

glands of the neck are matted together and very hard.

Adenitis from bad teeth is not difficult to diagnose. The fact of patient having a bad tooth or teeth in region of lower jaw with an increased tenderness when the teeth ache, plus the fact that the tonsil is not acutely inflamed should be sufficient.

Acute parotitis is sometimes difficult to differentiate.

Have seen mumps simulate peritonsillar abscess, but here while the tonsil tissues are inflamed they are not infiltrated.

The general symptoms are not so severe and the fact that the patient has had mumps would be of great diagnostic value.

Acute parotitis from general disease is not difficult to differentiate from peritonsillar abscess, but that from a bad tooth either erupted or unerupted or impacted might offer some difficulty.

Usually in these cases the x-ray would be of value besides the fact that inspection should show a quiescent tonsil and milder constitutional symptoms.

Prognosis as to life is very good. Very few patients die and those that do are from complications similar to the complications in tongue abscess. Among them are general infection, asphyxia, erosion of artery, septic thrombosis, edema of glottis, empyema of the sinuses, abscess of the lung and pneumonia.

Treatment. The treatment is divided into two parts—during the attack and operative treatment.

General treatment: Coal tar products in the beginning for relief of pain and fever; morphin or opiates in some form, for severe pain.

Gargles: Cold at first, ice bag at the onset—later if not relieved change to hot, to hasten the process.

Bicarbonate of soda gargles are excellent. Also hot milk with bicarbonate of soda.

Surgical: Open abscess when fluctuation is established. The usual site for puncturing anterior pillar abscess, near the junction of the uvula. In other words, where the expanded portion of the anterior pillar is located, or about one-quarter inch from the uvula. The incision should be made straight and deep, otherwise it will not puncture the abscess. Sometimes it is necessary to puncture lower down, depending upon the site of

the abscess. In posterior pillar abscess it is best to make a perpendicular incision one-quarter inch long and start as low as possible, as there is no danger of cutting a vessel, but make a straight incision.

These abscesses are much smaller than those of the anterior pillar and one should not expect a great quantity of pus.

It is necessary to inspect it daily to see that the incision does not close too early.

Prophylactic treatment: Complete enucleation of tonsil. This should never be undertaken until the patient is thoroughly well and rarely under six weeks after an attack of quinsy.

Retropharyngeal Abscess. This disease, although uncommon, occurs frequently enough and if not recognized it often terminates fatally so that the practitioner should be able to recognize it and administer the proper treatment.

It is nothing more than an ordinary abscess which occurs from an infection of the lymph nodes in the posterior lateral wall of the pharynx ending in supuration.

It is usually due to the staphylococcus but sometimes is tubercular. There is a difference between the acute form due to the staphylococcus and the one due to the tubercle bacillus, of which I will speak when we discuss the diagnosis.

The disease is usually found in infants and young children. The most common age is between one and five years.

Catarrhal conditions of the naso-pharynx are frequently the starting point. The cold seasons are more prone to produce the disease, as the catarrhal conditions are more common at that time.

Exceptionally the disease follows the acute infectious diseases such as scarlet fever, measles and la grippe.

As stated, the disease starts in the retropharyngeal lymphatic glands and the abscess develops either on the one side or the other, as the glands are situated on each side and not in the middle.

In the tubercular cases due to caries the abscess is more apt to be centrally situated and is always of slower development and is secondary most frequently to tubercular caries of the cervical vertebrae.

Symptoms. The first suggestive symptom is

a fever of unknown cause; after a time there is difficulty in swallowing which later becomes so painful the child refuses food.

Occasionally the swelling is so pronounced that fluid is regurgitated through the nose. (This should not be mistaken for post-diphtheretic paralysis.)

Associated with this is difficulty in respiration. The breathing often becomes dyspnoeic, with a kind of gurgling due to the accumulation of mucus in the deep pharynx.

There is an anxious expression and a peculiar metallic cry, something similar to the cephalic cry. The head is usually thrown backward and to one side. The mouth is open and the child often has a nasal voice and a laryngeal cough, especially in those cases where the abscess burrows downward towards the larynx.

Sometimes the constitutional symptoms are inconsiderable but debility and more or less fever are the rule.

In the severe cases the fever is usually very high for several days and prostration severe.

Course and Prognosis.—The course in the acute cases is rapid and in a few days to a week a threatening one.

An early diagnosis and proper treatment generally results in recovery.

The mortality is about five per cent. When the disease causes death it is usually from such complications as sudden bursting of the abscess causing asphyxia or edema of the glottis or septic pneumonia, abscess of mediastinum or occasionally from eroding of an artery, such as the ascending pharyngeal. Occasionally, in fortunate cases the pus burrows outward toward the neck and can be opened externally, but one should never wait in such cases, as there is more danger of the pus burrowing downward along the deep fascia and passing into the mediastinum which almost always ends fatally.

Diagnosis. This is often very difficult; first, because the disease is uncommon, and secondly because the condition is often mistaken for some other disease, such as diphtheria, tonsillitis, laryngeal stenosis, edema of glottis or pneumonia. In those cases where there is cough, many are diagnosed as croup.

I have seen one case in which two physicians made a diagnosis of membranous croup and in

another of quinsy. The latter condition is most frequently diagnosed, as the tonsillar tissues naturally are somewhat swollen.

In my own cases I was surprised to find so little inflammation or redness along the posterior wall. In fact, one will frequently go astray if he relies on the color of the posterior wall for a diagnosis.

Besides the fever there is difficult respiration, nasal cry, stiff neck, head to one side, prostration and in some cases a brassy cough. The most important part is a thorough examination by inspection and particularly by palpation.

The finger encounters a rounded or fusiform swelling at the posterior lateral wall of the pharynx and if a probe is used the usual discoloration upon pressure.

If one uses a good light (prying the mouth open with a mouth gag) he almost always can find the swelling. The bulging of the lateral and back wall of the pharynx will appear closer to the palate and uvula. This latter structure is not edematous as you frequently find in peritonsillar abscess.

Should the abscess burrow outward it is possible to make an error and think it is due to mumps or due to an adenitis from tonsil or carious teeth or possibly from the submaxillary gland infection, but a careful examination by inspection and palpation plus the symptoms generally enables one to make a correct diagnosis.

Treatment.—The treatment is to evacuate the abscess early.

The child should never be given any anesthetic and should be held firmly and the incision made longitudinally and not too far to the outer or lateral wall, as there is danger of wounding the ascending pharyngeal artery.

The head should be immediately turned forward and the child's body higher than the head, so the pus will not get into the lungs.

A forceps should be inserted after the first evacuation to spread the parts as you would do in any abscess.

No packing or swabbing is necessary, but the wound must be kept open for a few days to prevent refilling.

The relief of the dyspnea and other symptoms are almost immediate and the child most always makes a rapid recovery.

Metropolitan Bldg.

RADIO - FREQUENCY ELECTRICITY IN SURGERY*

NELSON H. LOWRY, M. D.
CHICAGO

It is not the object of this paper to disarm the medical profession of its time honored weapon against pathological tissue. The knife and scissors are the oldest weapons of surgical dissection of pathological tissue. They are and always will be indispensable.

Very early in the art of surgical intervention the hot iron or cautery was used for the separation of tissue and has continued in surgical practice down to the present time. Many surgeons would like to use the cautery in the removal of diseased tissue because of its protective sealing, sterilizing effect, etc. We all feel safer after having removed a beginning cancer by cautery dissection.

The actual cautery has many disadvantages in the operating room, such as slow separation of the tissues, sloughing and delayed healing of wounds.

It is to overcome these objections that your



Fig. I

The skin incision is being made for removal of a malignant gland of the groin. Regional anesthesia.

attention is called to a method of dissecting tissues by radio frequency electricity.

Radio-frequency currents were first used about a year ago in Germany as a fulgurating current for the removal of warts, moles, and epitheliomas. It was first used in Chicago as a surgical dissector early in 1924. The apparatus required con-

*Read before the Chicago Medical Society, December 3, 1924



Fig. II

Completing the dissection of a malignant gland of the groin.

sists of a miniature broadcasting station, made up of a series of transformers and two 50-watt transmitting tubes. This device generates a radio-frequency current of very high oscillation rate, about 3,000,000 a second and very low amperage and voltage, so as to eliminate burning of the tissue. If the ground wire be attached to the patient, and the antennae wire to the knife, the device is ready for use.

The knife or electrode very much resembles an eversharp pencil, having an insulated handle and a small metallic tip so that the electric current is concentrated to a single point. If this point be slowly drawn over the tissues, a rapid separation occurs very much as if the tissue were cut with a knife. Preceding the separation of tissue a wall of dehydration is developed by the radio-frequency arc so that the lymphatic spaces and small vessels are effectively sealed before the separation takes place.

Under the microscope the tissues give the appearance of having been partially dried in the sun's rays. The tissue seems denser and the cells appear shrunken and more closely crowded together. The small blood vessels in the immediate vicinity are not especially congested and no thrombi are observed. We have then, in effect, the protective sealing of the actual cautery but due to the lack of vascular changes and carbonization there is no interference with primary healing unless the electrode is held for a considerable time at one point. Cancer cells are shriveled up beyond recognition in the immediate zone of travel of the knife.

The rapid separation of tissue resembling a dissection made by a knife, and the ease of control since no mechanical pressure is required, only a guiding of the electrical current to the spot desired, make for an easier removal of many inaccessible malignant tumors, such as those encountered in carcinoma of the throat, stomach, and prostate.

For over a year, we have been using an experimental model of our own make, and have performed over one hundred operations in different parts of the body with a primary union in all but five cases. Clinically, the healing seemed to take place in about the same time as when ordinary surgical dissection was used, although the skin incision as well as the cutting of the other tissues was performed with the radio-knife. The failure of primary union in the five cases mentioned was due to drainage for abscess.

The classification of cases is as follows:

1. Malignant glands of the neck.....	3
2. Goiter	7
3. Thyroglossal fistula (malignant).....	1
4. Carcinoma of breast	10
5. Non-malignant tumor of breast.....	4
6. Gastro-enterostomy for ulcer.....	7
7. Gastro-enterostomy for malignancy	4
8. Resection of ileum	2
9. Resection of colon	1
10. Cholecystectomy	32
11. Appendectomy	34
12. Pyosalpinx	3
13. Hemorrhoidectomy	12
14. Ischiorectal fistula	4
15. Carcinoma of prostate	3
16. Prostatectomy, non-malignant	5

Inasmuch, as there is intense heat at the



Fig. III

Skin incision for removal of sarcoma of the testicle. Note dry field.

point of the electrode it must not be used in the presence of inflammable gases or liquids, such as ethylene gas or while the skin is saturated with ether or alcohol.

Caution must be given against holding the electrode too long in one spot, especially when incising the skin, as carbonization of the skin may result and a failure of primary union. On the other hand, if the electrode is drawn too rapidly across the skin the electric current will not make sufficient contact to produce a cutting effect.

SUMMARY

1. The radio-knife is not considered to be a substitute for the ordinary knife or scissors.

2. The cutting effect resembles that of an ordinary knife and is much faster than any form of cautery dissection.

3. The shriveling or dehydration effect on the tissues before separation occurs is a great protection against the spread of infection, and the metastases of malignant cells. We believe that it should be used in all cases where this protective sealing of the tissues will increase the chances of a successful operation.

25 E. Washington St.

DISCUSSION

Dr. Edward H. Hatton presented slides of histological specimens of tissue that were removed with the radio-frequency knife in order to demonstrate for



Fig. IV

Completion of dissection for removal of sarcoma of testicle. No vessel was ligated. Sutures for closing only were used.



Fig. V

Skin incision and first-stage of axillary dissection for radical breast amputation in carcinoma.

Dr. Lowry the extent of the changes that take place in the tissues and the width of the condensation and coagulation that occurs beyond the edge of the wound made by the electric needle.

Dr. Carl Beck said the demonstration was very interesting. He did not think he would learn to operate the radio-knife for two reasons, first, the scalpel is so easily handled and is always ready and one is not hampered by the wire attachment; second, because of the pathological changes shown in the specimens presented by Dr. Hatton. Presumably similar changes occurred on the other side. He asked Dr. Lowry if he had noticed any cases of secondary hemorrhage following the use of the knife. He had used the Finsen needle in a number of cases, but discontinued its use because of the secondary hemorrhage which followed.

Dr. A. J. Ochsner said that he had always been a believer in the efficacy of the red hot iron in the surgical treatment of malignant growths. In his opinion the radio-knife was a very convenient way of making a dissection of malignant growths without any possibility of carrying the infection into the lymph spaces. He has used the apparatus in a very large number of cases. His results have been very satisfactory. He has not used it in normal tissues except in one case of goiter.

Dr. T. Howard Plank stated that the radio-knife was first used in Chicago in 1922. Following the meeting of the American Medical Association in St. Louis he employed the knife in his work, but his results were not so satisfactory as those reported by Dr. Lowry. He has gone back to the use of the Percy cautery, but eventually he thinks something is going to come out of this knife.

Dr. Nelson H. Lowry, in closing, said that he had

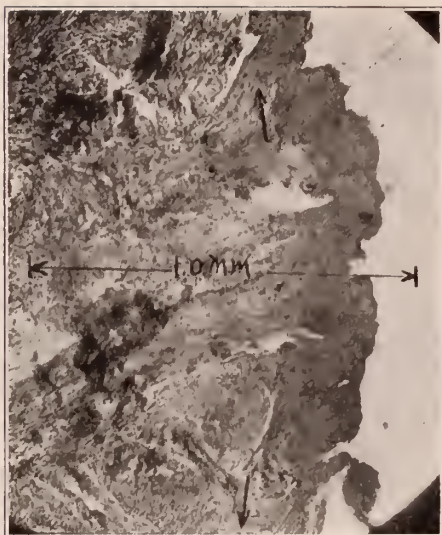


Fig. VI

The dissected margin of prostate gland tissue. Measured distance 1.0 m. m. The dehydrated or sealed area is indicated by small arrows. Depth $\frac{1}{4}$ m. m.

not encountered any secondary hemorrhage following the use of the knife. The reason, he believed, is that only the lymph spaces and small vessels are sealed; the large vessels are always picked up and ligated. With the actual cautery where all the vessels are sealed the inflammatory reaction occurs very quickly and secondary hemorrhage is the rule.

He thanked Dr. Plank for calling his attention to the fact that he had used the radio-knife.



Fig. VII

High power view of liver tissue. Measured distance 0.5 m. m. Depth of dehydrated portion $\frac{1}{4}$ m. m. Note normal appearance of tissue beyond sealed area.

MUCOCELE OF THE APPENDIX, WITH REPORT OF A CASE*

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COAL VALLEY, ILL.

Rare conditions are found at times in abdominal surgery in which a definite preoperative diagnosis is difficult or impossible. Mucocoele of the appendix is one of these and is reported because of the scientific interest of such rare conditions.

Cystic dilatation of the appendix is a rare condition. Dodge in 1916 reported 142 cases in the literature, and Davison in 1922 was able to add 18 more. The total number in the literature, according to Crouse, is from 85 to 256. Only three cases of fish egg mucocoele have been reported according to W. R. Morrison. Most of these cases have been taken from post mortem statistics and the largest proportion of those discovered as laparotomy were not diagnosed previously.

The etiology is unknown, but in acquired mucocoele certain factors are probably concerned, such as a low grade inflammatory process producing a gradual stenosis, a sterile lumen distal to the stenosis, and an actively secreting mucosa, together with some unknown property of transforming normal mucus into colloidal pseudomucin (Elbe). They may also be congenital or develop in a diverticulum.

The pathology is varied. The cysts vary in size, some being as large as a man's head. The shape depends upon the position of the stenosis, the amount of fluid, etc. The character of the contents varies much, serous, turbid, blood tinged, mucoid, muco-purulent, gelatinous, pseudomyxomatous, are terms used to describe the findings. Extremely rare is the fish egg type in which there are balls of inspissated mucoid material floating in the fluid contents. Microscopically, the serosa is usually unchanged. The muscularis may be thinned, normal, or thickened from hypertrophy or chronic inflammation. The glands may be partially occluded and form secondary cysts. The mucosa may become ulcerated and connective tissue replace it in areas. Should a cyst rupture, a condition known as pseudo-myxoma peritonei may result in a similar way as from a ruptured ovarian cyst, the chance for malignancy, however, being greater in the latter. There have been no cases in the litera-

*Read before Rock Island County Medical Society, October, 1924.

ture where mucocoeles have been associated at the same time with scirrhus or adenocarcinoma.

The symptoms are usually vague and of little value in diagnosis. The most common are those of a chronic appendicitis, unless the cyst ruptures. At times a mass in the right lower quadrant, which may be associated with constipation, is the only complaint.

The differential diagnosis includes a consideration of ovarian cyst, uterine fibroid, hydro or pyo-salpinx, malignancy of the intestine, cysts of the mesentery, traumatic hematoma, retroperitoneal cyst, intussusception, hydronephrosis, renal cyst, ureteral calculus, perinephritic abscess, floating or tuberculous kidney, tense distended cecum, and diverticulitis of the cecum.

The prognosis is good if entirely removed surgically before rupture. It is possible that carcinoma may develop in long standing cases from irritation of the cyst lining. Infection of the cyst contents is followed by empyema. Rupture of the cyst is followed by pseudo-myxoma peritonei, therefore clean surgical removal is most desirable.

The following case seen by the writer is a typical example:

R. C., male, aged 67, was first seen March 20, 1924. There was nothing unusual in his previous history, the patient stating he had never been ill and had had no abdominal complaints previous to the onset of the present trouble which began in November, 1923. At that time he began having slight discomfort in the right side of his abdomen, gradually increasing to the present time, but which had never been severe. Constipation progressively increased necessitating the use of cathartic for the first time in his life; when seen he was using them daily. There had been a loss of weight of 15 pounds in the last three months and he complained of weakness.

The physical findings with the exception of the abdomen were essentially negative. Palpation revealed a movable, firm, slightly tender mass in the right lower quadrant, extending downward from McBurney's point. There was no rigidity, distension, marked tenderness, or other abnormal findings.

X-ray, including motor meal and barium enema, on palpation under the fluoroscope, showed the mass apparently to be attached to the cecum. There was no filling defects in the cecum and no obstruction could be discovered in the cecum, ileo-cecal valve, or colon.

Blood examination showed a moderate second-

ary anemia. The urine showed no abnormal findings except indican.

The age of the patient, the presence of a mass in the right lower quadrant, the progressively increasing constipation, the loss in weight, the anemia, together with the x-ray evidence of a mass in the region of and attached to the cecum, justified in the writer's mind the diagnosis of carcinoma of the cecum, probably operable. Operation was advised and accepted.

On operation, April 3, 1924, incision revealed a large mass attached to the cecum, freely movable with no adhesions, and easily deliverable. A small remnant of meso-appendix was attached to the medial border. The mass being the same diameter as the cecum, with no definite line of demarcation between appendix and cecum, except that the mass was gray white in color and the cecum normal, clamps were placed across the cecum and the mass removed. The patient made an uneventful recovery, leaving the hospital on the twelfth day and is in good health at this date, October, 1924.

The specimen was sausage shaped, shining grayish white in color, that portion composed of cecum being reddish and slightly injected. The length was 16 cm., the diameter almost uniformly 5 cm., the tip measuring 2 cm. On opening the appendix, the contents were under pressure, protruding from the incision, and of a thick mucoid nature. On evacuation of the contents the size shrunk to about one-half the previous. Many small round particles of a grayish substance were seen floating in the contents and clumps attached to the walls. The walls of the cecum about the origin of the appendix were thickened. The lumen of the appendix is absent at the cecal end. The walls of the appendix were almost uniformly 2 mm. thick. The mucosa at several areas was roughened, clumps of small grayish particles being adherent. On microscopic section, all elements of the wall could be identified. The roughened places in the mucosa were ulcerated areas. The small particles were necrotic cell masses, many about fecal concretions. The diagnosis of mucocoele of the appendix, fish egg type, was made.

CONCLUSIONS

Mucocoele of the appendix is a rare abdominal condition, usually diagnosed at laparotomy or necropsy.

It may rupture, producing a condition known as pseudo-myxoma peritonei.

There is little tendency toward malignant change.

The prognosis, after clean surgical removal, is excellent.

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HEALTH IN INDUSTRY

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Interpretations of health conditions, and the causes that induce disease have surely been revolutionized in the past thirty years. I still remember going home from college, when I was eighteen or nineteen, to find in every room in the house a plate of sliced onions. My town was like all other towns of similar size, of about twelve hundred inhabitants, and the grade of intelligence was surely normal. When Mr. Harding was elected president of the United States, our Main Street found a place on the map. For Mr. Harding was born in our town, and even admitted it. On the day of his inauguration everybody went to Washington, everybody called him Warren, and all threw egg-shells out of their lunch boxes on the White House lawn, just to show him that we still considered him one of us. Any town that could produce Mr. Harding, and Tenny Claflin and Victoria Woodhull, and many lesser lights couldn't be absolutely a hick-town. Still, we had sliced onions placed all over our house. Even after two years of college training this procedure didn't seem at all unusual to me, for hadn't I worn about my neck, every winter of my life, until I went to college, a little bag in which was sewed some asafoetida, to ward off disease of many sorts? I remember yet, as the custom was general, when the wood fires in the church would get too hot on Sundays, the general atmosphere was hardly that of the odor of sanctity but rather that of over-ripe Rochefort cheese, the result of many bags of asafoetida, worn by the worshippers. I did inquire why the onions, however. It happened that we were having a terrific epidemic

of typhoid that fall, which proved most disastrous to the town, and very much so to my own family. The onions were placed about the house to absorb the poison, and the blacker they got, the more over time they were thought to be working. It never occurred to me then, or to any of us, that all vegetables turn dark when pared, and exposed to the air.

If people got sick they were cared for most lovingly. If they died, they were buried and mourned, but it was many years before the local board of health began investigating wells and drainage, and the possible relationship of such things to typhoid and other intestinal diseases. In spite of all the fresh air they get, and in spite of all of the advantages of country life, the health of country bred people averages lower than that of the city bred. Many factors enter into this estimation. The average city individual is better bathed, eats more regularly of less hearty food, and has more hours of relaxation. More than this, the hygienic soul of the city bred man is not his own. The Health Board regulates his conduct in a large measure, and the path of health regulations that he must walk is fairly narrow. Thus in our large cities we have little typhoid, decreasing intestinal diseases of all sorts, and if disease does come, better facilities for controlling quarantine. If all of this is true, I wonder if the economic tragedy of, for instance, typhoid ever occurred to you. Given a patient of the wage-earning white collar class; the chances are that he must go to a hospital. He must have a day and a night nurse. He must have a private room. His food must be prepared away from the diet kitchen. All of his utensils must be kept apart from those in general use. His linen must have special care. All of this costs enormously. The actual hospital expense of a recent typhoid case, over a period of ten weeks, was an average of \$150.00 a week. The income of the patient was twenty-five dollars a week.

If one is a wage earner in a great city, away from home, and dependent upon himself, he must go to the County Hospital. There is no better care any place than one can get at the County, but many dread the idea of it, a charitable institution, with its lack of privacy and its institutional atmosphere.

All of this may seem a lengthy introduction to a paper on "Health in Industry," but what

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is true of a town of average size, when it comes to problems of health and hygiene, is true of a community of workers, where from six to nine thousand workers are grouped together, for eight hours of the day. Our responsibility is somewhat graver, for during those eight hours they are with us, we carry the responsibility of seeing that their health conditions are correct. We have one advantage, in a large firm, that our men and women are picked workers. All have been examined, and when they begin work with us, they are in fit condition to undertake their duties. But many things may happen in a year, in the life of anyone. So in a crowd of six thousand souls, one is apt to meet almost every ill that any human being can have, to say nothing of many that no human being ever could have, except in his imagination.

Many, in giving superficial attention to the medical department of a large industry, are apt to misinterpret it. I have heard much criticism of Industrial physicians; I have never heard any of railway surgeons, and never any of health commissioners of cities. One sometimes resents the activities of the individual in health departments, but never of the idea of health supervision. The Health Commissioner of the city of Chicago, or of New York, is almost a czar, and yet he must be so, if he is held responsible for the lives of several millions. In a smaller way, we become responsible for our workers.

I am going to make this brief paper just a resume of what we are doing, and make no effort to be technical. I am hoping that you will care to know just what we do to keep all of our many hundreds at work. For with us, every man and woman away from work slows that day's work. We *must* keep them well, and *must* keep them at work. That is the great object of our medical department.

This past winter we had a mild epidemic of typhoid—mild as to the number of cases, but very severe as to the character of the infection. We could hardly expect to have our people escape absolutely, as all were subjected to the same conditions of water and milk supply. We finally had one case. It was most peculiar in its inception, as it started with a terrific nosebleed. This occurred over a period of two weeks, while the case was ambulatory. In the second week however, the temperature shot up, and the patient became ill enough to seek medical care. It

is not necessary to go into the history of the case, as far as the typhoid is concerned. Our first thought was of our cafe. Each day we feed from three to four thousand. So our water had to be examined, and our milk source investigated. The patient came from the North Shore, where most of the series of cases had developed. The health department pronounced our filtered water of unusual excellence, and the milk supply beyond criticism. We thus felt that we had protected the rest of the employees. But the most comforting thing to me was the opportunity it gave to have every cracked dish in the cafe broken. I myself have never liked to drink from a cracked cup, and have never liked to eat from a cracked plate. By impressing upon our steward that such dishes never could be kept clean, and that their cracks might harbor disease, I induced him to break all that were not whole. You will be surprised that it averaged over two hundred plates and cups a day.

While I had him in a receptive mood, we also discarded all torn napkins, and all silver from which the plating was worn. While these things may have little relationship to typhoid, they surely do have to appetite. We feed our employes at what is practically cost, to make it possible for them to have a hot luncheon at little more expense than a cold one, brought from home, would be.

If one attempted to mention all the factors that conduce to health in a large plant, a paper like this would take about four weeks to read. There are so many things that enter into plant hygiene—lighting, ventilation, freedom from drafts, air space, and all of the safe-guards against accidents. Our aim is to have no illness, and that is the end towards which we work.

Shortly after I took charge of our medical department, twelve years ago, I was impressed by the faith that most of the wage-earners had in drugs as cures for everything. That was one of the first things we had to teach them; that if they were out of sorts, there was a reason for it, and that simply taking a drug got neither of us anywhere. It was up-hill work. Many insisted upon medicine for everything, and the worse it tasted, the better it seemed to them to be suited to their needs. After these years, we have about eliminated medicines, except those that are common to most individuals, such as occasional cathartics, etc.

One of the first things that impressed me was the number of faints among our girls. We had a rest room in which there were thirteen beds. These were always occupied. Now a girl in a faint is getting out little work. I don't know how much of girl psychology you know, but if one girl in a department faints, work in that department is done for that half day. Those immediately about her will go into hysterics, and all the rest will swallow their chewing gum. If there is an occasional fainting spell among many hundred girls, that would not be especially significant. But if many girls faint each day, there must be a reason for it. It was up to us to find the reason. Fortunately we were able to trace the cause with almost mathematical precision. By making a chart, much like a temperature chart in illness, showing the output of work in one large department, where some six hundred girls were employed, we saw that the work was up-grade for the first few hours of the day, when it reached its peak. Then it receded until the noon hour. After luncheon there was again a rise, although it never reached the peak of about ten-thirty in the morning. After three in the afternoon the output began to fall, and fell rapidly until closing time. It seemed there must be some reason for this lapse, and it was necessary for us to find the reason, to see if it was a correctible one.

Working upon the theory that the slump might be from insufficient feeding we evolved a remedy. Many of our men and women come many miles to work. They must be at their desks by eight. Street-cars are uncertain, and allowance must be made for delays. There resulted the necessity of leaving their homes or boarding houses very early, in many instances. Now one to appear in public must not only arise from bed. She must wash, and comb her hair, must powder her nose a little, dab a little rouge on her cheeks, and pencil a little red upon her lips. These are serious matters to girls of eighteen years, and take time, and a certain artistic quality. Meantime the hands of the clock are conscienceless. So usually breakfast consists of a piece of toast, or of bread, a cup of coffee hastily drunk; with no attention to bowel functions; and a rush to the street car. There are people who can work all forenoon on empty stomachs, but we have never found them among our employes. What wonder, in the mad

rush to get out work that the under-fed body rebels? Acting on the theory of insufficient food, we decided upon the experiment of feeding our girls, and of watching results. Out of a room in which were employed six hundred girls, we selected, at random, twenty. We put them on a feeding, at ten-thirty in the morning, at three in the afternoon, of a twelve ounce glass of malted milk of double strength. In the six weeks' period of the experiment, the least gained was ten pounds, and the most twenty-eight pounds. We had proved our point. So we instituted the practice of giving all of our girls and men who seemed to need it, a mid-period glass of malted milk, keeping track of the weights, each month. Our faints stopped as if a miracle had been performed. That was not the only miracle. Malted milk purveyors began to treat me with the greatest consideration; some even recognized me on the street. Our little purchase of our hundred pounds a month not only brought our employes health, but brought me most profuse attention from rival milk firms. We kept up this custom for several years. Meantime, abundant labor supply was permitted us to weed out the weak ones, and at the present time we have little need for this sort of food stimulation. But the experiment did allow us to get away from tonics and drugs, for tired nerves.

For several years we had a Dental Department, of four chairs. During these years, we put into condition the mouths of all of our employes needing care, for it is now generally considered that the teeth have a large part in preserving health. At this time, we do not take on anyone whose teeth are bad. After several experiences with rheumatism and the attendant endocarditis, we felt that we were imposing no hardship in requiring sound teeth. This reminds me of a laughable experience I had with a Russian workman. I complimented him upon his beautiful white teeth, and told him how well they showed his good care in brushing them. He replied that he had never brushed his teeth in his life, and had never had a bath. Strange as it may seem, he was of powerful build, muscled like a prize-fighter, and his clear white skin had no odor. To be frank, I hate water myself, and would never take a bath, except for the good of the community. I wonder how he puts it over. In spite of his upsetting of traditions, we still

advise the free use of the tooth brush. Also, we require clean throats. We take on no one who has infected tonsils. It is amazing how many have picked up in health when they have lost their focal infections.

I wish I could go into details as to our recreations. I heard a customer say one day that she did not see how they ever got anything done in our plant, as all the girls seemed to be singing and dancing all the time. We go to great lengths to make our employes happy. If one has to work, it does make it easier to have the surroundings agreeable, the supervisors courteous, the library and music rooms accessible, and the cafes clean and the food appetizing. All of these things are factors in increasing the output of work.

DR. A. M. HARVEY, Chicago: I was glad to hear Dr. Wieland's very able paper, especially as it was read to an audience composed of so many down state men, because Dr. Wieland has been doing exceptionally good work in Montgomery Ward's plant. I happen to be doing the same class of work for another plant in the city; have done so for something like thirty years. Practitioners of medicine in general do not realize what industry is doing for its employees. The Doctor brought out what his company is doing for themselves in this work, but he did not emphasize sufficiently what the work means for the individual.

I recall one day a young lady came into my office to go to work and I wondered how she happened to come to our establishment. She had been in Chicago only a few days working at a small concern. Her sister talked the matter over with her and recommended that she go to work for Crane Company because they had physical examinations and she would have the benefit of an examination and would not have to work with people who might have an infectious or contagious disease. This illustrates what some workers think of industrial medicine. As a rule those who think are not antagonistic, but they and their families recognize the benefits. I believe that City and State Boards of Health also appreciate industrial medical departments because they supplement and function with these boards.

I should like to have the Doctor tell us about his percentage of rejections last year. My rejections ran about seven per cent. They were not all rejections because individuals are sometimes held over on account of a remedial defect. For example, should an individual need a tonsillectomy or a herniotomy, we hold him over for a certain length of time and if he has the defect corrected he may come back and is placed at work. Some do not return and, of course, technically it is a rejection. Others physically unsuited for certain kinds of work are passed for work for which they are physically suited but not liking such jobs decline them. Technically it is a rejection.

We have a plan which probably Dr. Wieland fol-

lows that works very nicely and takes the place of periodic examination. Making periodic examinations where eight to ten thousand people are working is a real job, but we have a rule that an employee when sick shall clear or return through the Medical Department and in addition any employee who may so desire may consult the Medical Department and in that way we do examine a great many employees and frequently some several times during the year. Along with the Doctor's idea of the use of malted milk you may be interested in knowing that some years ago in discussing the question of beer drinking in the National Safety Council it was suggested that it would be a good idea to recommend milk, so we took the matter up many years ago and allowed approved milk men to go through our plant. The workers took very kindly to the idea and now we dispose of thousands of bottles of milk which is drunk usually during the forenoon or at lunch hour and this plan was followed long before the Volstead law went into effect. Beer was never allowed in the plant, but some men, of course, would drink the same during the noon hour in nearby saloons. Milk makes an excellent substitute.

Industrial medicine is a fascinating work. I think it is a work that does real good and certainly managements appreciate the good of it or they would not spend the money for it; as the Doctor has intimated, it costs a great deal to conduct a full time Medical Department in a large industrial establishment.

DR. FRANK WIELAND, Chicago (closing the discussion): As to the rejections, Doctor, our percentage goes a little higher than that because among women we have more rejections. Seven per cent of the men are rejected for hernia. Take an hour man; the hour men do not come through the Medical Department; one will go on the work at nine o'clock; at ten o'clock he will have a hernia, have to be operated on and we have to pay him until he dies of old age.

We had to vaccinate six thousand people. The Health Department gave us one month to do it in. We also require that everyone who has been sick must return to work through the doctor's office.

A PLEA FOR THE CLOSED METHOD OF TREATING EMPYEMA IN CHILDREN*

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In spite of the results of much exhaustive laboratory and clinical research on the problems of empyema, in spite of the tremendous literature advocating the air tight drainage, the time-honored method of rib resection and open drainage is still very widely used. As the season is now

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approaching in which the incidence of empyema reaches its peak, I wish to make another plea for the so-called closed method of treatment.

By the closed method I mean a method which allows no air to enter the pleural cavity. The method that I use, which is essentially the same as the methods described by Diedrich, Mazingo, and numerous others, is, in brief, as follows: Local anesthesia; piercing through the intercostal space with a trocar; inserting into the empyema cavity through the trocar sheath a small drainage tube (soft rubber catheter F12 or slightly larger); withdrawal of the trocar-sheath; drainage of the pus either by repeated aspirations through the tube or by continuous suction; regularly repeated instillations of Dakin's solution until the cavity is sterile and practically obliterated; withdrawal of the drainage tube, the whole procedure being carried out in such a manner that no air is permitted to gain access to the pleural cavity either through the tube or the wound.

The advantages of the closed method of treatment of acute empyema, especially in children, are the following:

The procedure necessary to insert the tube is much simpler than that required for rib resection. It produces no more shock than the ordinary exploratory pleural aspiration. For this reason it can be carried out in the very sickest cases. Neither an operating room nor elaborate equipment is necessary. It has been my custom to perform the operation in the dressing room or even in the patient's bedroom without removing the child from its bed.

Local anesthesia is always sufficient. The entire operation can be made absolutely painless. It takes but a few moments to insert the tube, so that even the most nervous and apprehensive of youngsters can stand the procedure. The fact that no inhalation anesthetic is required is a very great point in favor of the closed method, especially in such cases in which the lungs are still actively involved.

In the closed method no pneumothorax is produced. That means that there is no sudden change in the intrathoracic pressure relationships. The lung on the affected side is not suddenly collapsed, nor is the mediastinum suddenly allowed to bulge with the resultant change in the so-called unaffected lung. A certain amount of collapse of the lungs has taken place, due to

the presence of a greater or lesser amount of fluid. This collapse is not increased by the inrush of air as in the case of the establishing of an open pneumothorax. The lung air capacity is not diminished; on the contrary, as soon as fluid is sucked out of the chest, the lungs are correspondingly expanded. For this reason there is no danger in establishing the drainage even in the very earliest of cases in which no adhesions have as yet formed. The air tight method of treatment of acute empyema can be started and should be started as soon as the diagnosis of a purulent pleural fluid is established. (Numerous cases of pneumonia, especially in children, are accompanied by a pleural effusion which in many instances will disappear spontaneously or after one or two tapplings. This fluid is a serous fluid, usually clear. This is not an empyema.) Thus, the method which avoids an open pneumothorax has for this very reason two great advantages—it is not dangerous, and can be started early in the disease.

All the pus which is drained from the empyema cavity is drained out through the drainage tube. As much or as little pus can be drained at any one time as is desired. If the presence of a large accumulation of fluid has caused respiratory embarrassment, enough pus can be evacuated slowly to relieve the respiratory difficulty. The child is carefully observed and at the very first indication of untoward symptoms arising from the relief of pressure the drainage is stopped.

The outflow of pus is so controlled that the dressings are not soiled. With the old method of rib resection and open drainage, the wound is continuously draining and the child is lying for the greatest part of the time in a sea of pus. With the air tight method the pus is drained off by means of a syringe or some other form of suction apparatus into some convenient receptacle. The dressings, which are applied at the time of insertion of the tube, are not soiled and are not changed for at least a week. After that time they are usually removed, the underlying skin cleaned with alcohol, carefully dried, and dressings reapplied, the tube, of course, being left in place. The twice daily dressings which are necessary in the case of open drainage are replaced by a single weekly dressing. The pus is aspirated as often as every two hours. At the same time that the pus is aspirated the Dakin's solution is instilled. Inasmuch as the drainage tube is a long one and

protrudes through the dressings, this can usually be done without disturbing the child at all. Thus, although the after-treatment requires as much or more attention on the part of the nurse in the case of the closed drainage, from the patient's point of view it is infinitely simpler.

As the pus is withdrawn a partial vacuum is produced. In the case of open drainage this is replaced with air; in the closed drainage this vacuum tends to expand the lung. Theoretically, at least, this should be a tremendous advantage inasmuch as the complete expansion of the lung and the obliteration of the empyema cavity is the goal of all treatment. Theoretically again, the cases should, therefore, get well quicker, encapsulations and the occurrence of chronic empyema should be less frequent. I, personally, believe this is to be the case. To prove this assertion would require a large group of cases derived from the same locality, and treated by the same group of attendants in the same hospital in which the cases were subjected alternately to the open and closed method. Most statistics cited to prove the contentions of the advocates of either method have been derived from separate groups of cases, treated by different surgeons, often in different hospitals and during different epidemics. The enormous variability in the course of acute empyema is known to every one and no conclusions are accurate unless drawn from a group admitted from the same source and treated with the same degree of care. During the War I adapted the closed method and since then I have felt that its advantages so far outweighed those of any other method, that I have been unwilling to subject alternate cases to the open drainage to prove these last named theories.

In conclusion, I wish to state that a certain selection of cases for the closed method is necessary. Some cases with a bronchial fistula will not tolerate the instillation of Dakin's solution. In other cases the bronchial fistula produces a pneumothorax from within, as it were, and it is obvious that all precautions to prevent the ingress of air through the drainage tube or wound cannot prevent this. In cases of this type it may frequently be necessary after a short trial to stop the closed method of drainage. Bronchial fistula, contrary to prevalent opinion, frequently heal as soon as artificial drainage is established. In those cases in which the closed

method must be discontinued I make a long intercostal incision and then cover the opening into the chest wall with a large flap of dental rubber. The pus can readily escape and yet with each inspiration the rubber is sucked firmly against the wound, thus, in a way, overcoming many of the disadvantages of an open pneumothorax and virtually establishing closed drainage.

Conclusions: The advantages of the closed method of treatment of acute empyema over the open method are:

The procedure is simpler.

Does not require inhalation anesthesia.

Does not cause shock.

Does not produce an open pneumothorax and therefore, is not dangerous even in early cases.

Does not produce collapse of the lung.

Does not cause sudden changes in intrathoracic pressure relationship.

The drainage tends to expand the lung.

The dressings are clean and need be changed but once a week.

The drainage and irrigation of the cavity can be carried out without disturbing the patient.

Theoretically, at least, the occurrence of encapsulation and chronic empyema is less likely.

THE PREVENTION OF POST-OPERATIVE INTESTINAL INCOMPETENCE*

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In discussing this subject I have in mind a condition in which there is cessation of the normal mechanical functions of the intestinal tract after an abdominal operation. It is assumed that there is agreement as to the factors immediately concerned in its production, the pathology in the average case being represented by mechanical hindrances on the one hand, and by paresis of the intestinal musculature on the other hand.

In addition to what is revealed at autopsy, the clinical course of patients who have had the benefit of timely enterostomies furnishes extremely interesting and valuable information, and leads to the belief that actual mechanical barriers are, in the case of the average patient, of limited extent, and that they play a minor

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role in the production of so-called post-operative ileus.

It is well known that when an enterostomy is performed before the development of marked toxemia, the evidences of obstruction, in the average case, soon disappear. Within a few days there is spontaneous evacuation, and it is not long until the patient who has been in dire distress, with pain and vomiting and distention, is relieved so far as these symptoms are concerned, and some days later the enterostomy fistula closes without operation of any kind. What has been done for the patient? A small catheter has been introduced into a distended intestine through an opening in its wall so that toxic liquids and gas might escape, thus permitting the distended intestine to collapse—that is all. What is the explanation? There appears to be but one reasonable hypothesis, and that is that the essential cause of the condition was a paresis of the intestinal musculature. As soon as the distension was relieved the musculature had an opportunity to rest, and after it had rested it was able to function.

It would not appear, then, that in the average case, there is an actual mechanical obstruction that would greatly interfere with the onward progress of intestinal contents, under even fairly normal conditions, but it does appear that even minor mechanical hindrances may be effective when there is behind these hindrances a toneless and helpless intestinal musculature.

The term "ileus" has been used rather loosely to designate the condition of which I have spoken. It is hardly an appropriate term from either an etymological or a pathological point of view. It is derived from a verb meaning to twist, but it is not at all certain that twisting takes place very often in the condition usually called post-operative ileus. Adynamic ileus is a little better, because it expresses the lack of physical strength, but there is no reason to believe that adynamia is necessarily or particularly associated with twisting. Post-operative obstruction is not a good term because it emphasizes the importance of a mechanical barrier which is believed to be, relatively, of minor importance.

Taking into consideration, then, the conclusion, that seems to be supported by clinical and pathological data, that the determining factor in the production of this post-operative catastro-

phe is exhaustion of the intestinal musculature, the term "post-operative intestinal incompetence" would appear to be an appropriate name, for the reason that it more distinctly indicates the type and the location of the dominant pathology.

Manifestly, there are certain pathological conditions, such as extensive damage of the nervous system, profound toxic states and widespread peritonitis, in which intestinal incompetence cannot usually be prevented. There are also certain conditions in which the surgeon may deem it wise to perform a provisional enterostomy as a prophylactic measure in connection with the primary operation, as, for example, certain operations directly involving the gastro-intestinal tract. But here I wish to speak of the incompetence that, without proper management based upon an intelligent conception of the pathology, may develop after the average intra-abdominal operative procedure.

In order that we may have additional information to assist in the formulation of preventive measures, let us try to visualize the surroundings and circumstances in connection with the average surgical operation involving the organs of the abdominal cavity. In addition to the temporary paralysis of its nervous mechanism due to the anesthetic, the intestinal tract is traumatized to a greater or lesser degree. When we reflect upon the varied types of pathology encountered by the surgeon, and take into consideration the necessary operative procedures—the handling, the cutting, the separation of viscera, the sewing, the readjustments, the damage of the blood supply—the truth of this statement is apparent. Regardless of the knowledge and the wisdom and the cleverness of the surgeon, there is trauma—trauma inflicted upon viscera already crippled by the pathology that makes the operative procedure necessary—trauma through which the intestinal tract, on account of its extent, location and environment, is practically always damaged. As a result of these things, the patient leaves the operating room with the functional ability of the intestinal tract greatly reduced.

Based upon the pathological facts that I have tried to point out, there are, in my judgment, three requirements of prime importance in the prevention of post-operative intestinal incompetence—the administration of water, and the securing of rest and sleep. These requirements

are important before operation; after operation they may be indispensable.

If it is true, as I believe it is, that the mechanical element in this condition is not incompatible, in the average case, with saving function of the intestinal tract, under fairly normal circumstances, the principal problem in our efforts to prevent incompetence should be to conserve the ability and the energy of the intestinal musculature, or to take steps to restore it to a condition of functional usefulness. I believe that through the assiduous application of the requirements mentioned these results may be realized.

Obviously, no organ can function without an adequate supply of water. The body is composed largely of water. It is necessary for the proper activity of the cells of the body everywhere. When the supply falls below certain limits, function is reduced or lost. And yet, it is a common observation that the patient who is to be subjected to a serious surgical operation is deprived of water for hours, sometimes even days, while much that is in him may be taken out by unnecessary—I think I should say dangerous—purgation. There have been many examples that prove that animals may live without food for many days if they have water. If they are deprived of it they die relatively early. The function of the musculature of the intestinal tract depends upon the activity of the component cells. They atrophy and die without water.

After operation water is particularly necessary. It may not be desirable to give it by mouth, but it can always be given. It may be given by proctoclysis. It may, in proper form, be given by hypodermoclysis, which is one of the most effective routes. If necessary, it may be given intravenously. It should be given in some proper form by some proper route, because the resumption of functional activity depends upon it to a very large extent.

After an abdominal operation, I cannot conceive of requirements more essential—more absolute—than rest and sleep. Even in the healthy state of the animal body there must be rest and sleep. If the animal is deprived of either it can not long be in a state of health. If these things are necessary under ordinary normal conditions, they are many times more necessary after an operative procedure. If this is true, there should be no hesitation on the part of the surgeon in taking the steps necessary to make it possible for

his patient to rest and sleep after operation. In my humble opinion, the neglect of this duty is no less than a species of cruelty that may jeopardize not only the comfort but the best interests of the patient. Believing this, I do not hesitate in the average case, when the inability to rest and sleep cannot be attributed to causes amenable to other management, to give morphine. It is usually not necessary to give large doses—one-sixth grain hypodermically being the dose for the average adult patient. It should be repeated, if necessary, the frequency of the repetition being determined by the condition and peculiarities of the patient. Through its proper use, the patient is able to rest and sleep. He has general rest—and, what is of particular interest in considering the prevention of intestinal incompetence—the musculature of the intestinal tract is permitted to rest.

I would not undertake to say that such a potent agent as morphin does not have inherent dangers, but I am convinced that those dangers are not applicable to the intestinal tract during the first few days after an abdominal operation. Indeed, I regard it as a *sine qua non* in the case of many patients during this period, because it not only makes it possible for the patient to have general rest and sleep, but particularly because it makes it possible for a bruised, crippled, irritable intestinal musculature to rest and regain its tone.

While general rest is desirable and necessary, rest of the gastro-intestinal tract after abdominal operations may be, in my judgment, an imperative necessity. To that end, in addition to the means of which I have spoken, I believe that no food should be allowed for two or three or more days after operation. It has been a frequent observation that on the next day after operation the patient is comfortable but hungry. If on that day food is not allowed, the next day he will be neither uncomfortable nor hungry. If food has been allowed on the day following operation, the next day he will often be neither comfortable nor hungry—sometimes on account of the upset resulting from the early taking of food he will feel that he will never again be hungry.

I am arrived now at the most important part of this discussion, and that is in connection with the use of cathartics, stimulating enemata, and other agents, such as pituitrin, that produce spasmodic efforts of the intestinal musculature. We

have found that after an abdominal operation the intestinal tract is always damaged to a certain extent. In many instances, it has been terribly damaged, and, like any other crippled organ—like the hand, for example, or the foot—when it is crippled it can not function. If the hand or the foot or a limb is traumatized it is permitted to rest. It is not only permitted to rest, but steps are taken in the way of support and protection so that it will be the better able to rest. The situation is not exactly analogous, because the jeopardy to which these members are exposed without protection represents to only a slight degree the jeopardy to which the gastro-intestinal tract, without an adequate sensory nerve supply, is exposed after many abdominal operations. Instead of the orderly peristaltic movements in the proper and normal manner and in the proper and normal direction, originating in a proper and normal way, there are confused, conflicting, spasmodic efforts in many areas on account of irritation of the intrinsic ganglia of the intestine, and on account of the damaged blood supply through which the cellular structures in certain parts of it are, for the time being, at least, robbed of pabulum necessary for even the least function. In the presence of such a pathological condition, any agent that causes irritation aggravates the abnormal efforts, and in the case of some patients, if the aggravation is kept up, it leads to disaster.

Cathartics are irritants. These agents act through the process of irritation, and since irritants aggravate the existing abnormal movements of the intestinal tract after abdominal operation, they should not be given. While most of the patients to whom they are given may escape with their lives, a certain number will not be able to bear the additional insult, and the only hope for them will be in the performance of an appropriate emergency operation for the relief of complete intestinal incompetence. So thoroughly do I believe this, that I would consider it just as reasonable to order a patient with a broken leg to jump out of bed and try to run a race as to order a cathartic for a patient who has just had an abdominal operation.

Taking into consideration the pathology, the intestinal tract should be permitted to rest. There is no reason to get excited about moving the bowels. In my clinic we do not bother about moving the bowels. Frequently, if the patient

is let alone, the situation will take care of itself. If not, after all evidences of irritation are gone—usually on the fourth or fifth day—a low enema of one pint of plain warm water is given—nothing else. This is repeated daily as necessary—never more than one pint—usually never more often than once a day. The result is that the post-operative course is characterized by comparative comfort and happiness.

Stimulating enemata are not quite as bad as cathartics because the small bowel is not directly involved, but since they produce their effects through irritation they are bad. They are bad for the same reason that cathartics are bad—because they irritate a crippled intestine that ought to rest, and in that way interfere with the resumption of lost tone and the establishment of proper function.

I am often asked what should be done in the unfortunate case in which there is rapid development of distressing and dangerous gastro-intestinal symptoms soon after operation. In such a case, the patient vomits frequently, there is pain and great abdominal distention. No flatus is expelled. This condition, with the pain and repeated vomiting, and great tympany, surely presents a situation that should be approached with care. The patient in this condition has a potential incompetence. It is in just exactly this kind of situation that cathartics and enemata and pituitrin, or some other powerful agent are often employed upon the altogether unreasonable and dangerous theory that the gastro-intestinal tract can be forced to function, and the average result is disaster. The application of such measures runs counter to every sound and reasonable conception of the pathology.

What should be done for the patient in this condition?

1. Wash out the stomach. Repeat the lavage every two or three or four hours, if necessary, until the material returned does not indicate regurgitation of intestinal contents, or, if it is preferred, introduce a duodenal tube and let it stay in, the necessity being to keep the stomach, and incidentally, the upper intestine as free as possible of toxic material.

2. Give morphin, and repeat it often enough to keep the patient comfortable.

3. Give water by protoclysis, hypodermoclysis, or some other appropriate way.

4. Give nothing by mouth.

5. Introduce the end of a colon tube just well above the sphincter occasionally, and let it remain for an hour or two.

If these things are carried out methodically, and if the patient has the ordinary care and protection that any very sick individual should have, the vomiting will cease, in the course of some hours the distention will begin to disappear, the patient will require morphin less and less often, and in a day or two the surgeon will be able to write on the progress sheet "Condition satisfactory."

Let me assure you that this, as far as I am concerned, is not a theoretical discussion. For nearly fourteen years I have not employed cathartics after abdominal operations. I have tried to put into application the requirements of rest and sleep and water. This plan has stood the test over a considerable period of time. I believe in it with all my soul. I believe that through its application lives are saved. I trust that those who do not agree with me will ponder what I have said, for I am convinced that in this way it is possible to prevent intestinal incompetence after the average abdominal operation.

MENSTRUATION IN A MALE

Dr. W. D. Halliburton (*Weekly Med. Rev.*, 1895, 1, No. 49) was consulted by a druggist, aged 26 years, who stated that he had menstruated regularly since he was nineteen years of age. The attacks came on with great regularity every month, but at times he missed a period or went one or two weeks over time. These attacks were preceded by severe pain in the back and lower part of the abdomen. This lasted from 24 to 48 hours, during which time he could scarcely endure the pain. Then followed a muco-purulent discharge, streaked with blood, from the penis, lasting four or five days.

The penis and testes were well developed. He was married and had one child. He enjoyed sexual intercourse naturally.

He had rather a feminine disposition, wore a corset, could do any kind of sewing or house work, and felt as much at home in a "Mother-hubbard" as with his pants on.

He had a small waist and broad pelvis, no mammary development and a respectable growth of beard. —*Practical Med.*, Delhi, India, May, 1924.

PETRIFIED

Horace—"What did your wife have to say when you came in at four this morning?"

Maurice—"Didn't have a word to say."

Horace—"S matter, tongue-tied?"

Maurice—"No, I put cement in her beauty clay." —*Bear Skin*.

Society Proceedings

ADAMS COUNTY

Meeting of April 13, 1925

The meeting was called to order at 8:20 P. M. at the Chamber of Commerce with Dr. C. D. Center, president, in the Chair. There were 41 members present.

The secretary made a motion that the minutes of the last meeting be approved as published in the April *Bulletin*. Seconded and carried. The Secretary called the attention of the society to the correspondence that had been received during the month as published in the April *Bulletin*. Dr. Knox made a motion that the society cooperate with the Quincy Public Health District in the matter of Public Health Week. Seconded and carried. Dr. Nickerson made a motion that the Public Health Committee be given full power in regard to observing Health Week. Seconded and carried. Dr. Wells made a motion that the Program Committee be given full power to decide whether or not to have a motion picture demonstration as per the request of the H. S. Fisher Co. Seconded and carried. The Secretary called the attention of the Members to the fact that the Legislative Committee of the Illinois State Medical Society is publishing a weekly bulletin in regard to the Legislative situation in Springfield at the present time and that several important bills to which the medical profession should make protest are pending. Dr. Nickerson made a motion that the Public Health and Legislative Committees be given full power to look after the legislative situation. Seconded and carried. Inasmuch as the dentists had extended a challenge to the physicians for a bowling and golf match, Dr. Koch made a motion that the entire matter be turned over to the Social and Entertainment Committee to accept the challenge or not. Seconded and carried. Dr. Knox stated that the Board of Censors were not as yet ready to report on the application of Dr. Tully Snider for membership in the society. Dr. Wells made a plea for the members to pay up their pledges that they had made for the support of the Illinois State Medical Society Convention next month.

Dr. F. H. Falls of Iowa City, Ia., gave a very interesting talk on the "Management of Breech Presentation," which was followed by a motion picture demonstration of films that had been taken in Vienna, illustrating the subject. This was followed by a paper by Dr. F. T. Brenner on "How We Can Reduce the Maternal Mortality in Obstetrics." The discussion on these papers was opened by Drs. Wells and Aldo Germann followed by a lengthy discussion by Dr. Falls who discussed Dr. Brenner's paper in detail. A general discussion of both papers then followed in which the following members took part: Drs. A. Bitter, Bierne, Baker, Koch, Williams, Blan and Bryant, the discussion being closed by Drs. Falls and Brenner. Dr. Falls then showed another motion picture on Cesarean operation done under local anesthesia and craniotomy in various obstetric conditions.

Dr. Bryant of Clayton gave a short case report of a case of breech presentation. Due to the lateness of hour Dr. Center did not give his case report. Dr. Pollard made a motion that the Chair appoint a committee of three to name an Orthopedic surgeon to conduct the clinic for crippled children to be held from time to time at Blessing Hospital of this city in conjunction with the Illinois Society for Crippled Children. The motion was not seconded and hence lost. Dr. Koch made a motion that we extend Dr. Falls a rising vote of thanks for coming to Quincy to address the society. Seconded and carried. Adjournment was then made at 11:45 P. M. This was the first meeting entirely devoted to obstetrics that has been held in many years and it was the sentiment of the members that it was one of the most interesting meetings that we have had in a long time.

HAROLD SWANBERG, M. D.,
Secretary.

COOK COUNTY CHICAGO MEDICAL SOCIETY

Diagnostic Clinic, April 8, 1925

Cases of Gastric Syphilis.....A. A. Goldsmith
Asthenic ChildrenI. A. Abt
Cases of Syphilis Offering Some Problems in Diagnosis and Treatment.....David Lieberthal

Meeting Under the Auspices of the Northwest Branch, April 15, 1925

1. Duodenal Obstruction Due to Harris Bands....
.....George O. Solem
Discussion—E. E. Henderson
2. Primary Carcinoma of the Lung. With a Report of Case and Demonstration of Slides.....
.....George H. Schroeder
Discussion—Frederick Tice, Theo. Ticken

Regular Meeting, April 22, 1925

The Use of Intravenous Germicides in the Treatment of General and Local Infections and Infectious DiseasesHugh H. Young

Johns Hopkins Hospital, Baltimore, Md.
Discussion—Frank M. Phifer, Harry Culver,
Irvin S. Koll

Diagnostic Clinic, April 29, 1925

1. Stuttering and Stammering—The Nature, Mechanism and Principles of Treatment..Meyer Solomon
2. Surgical Clinic—Report of Abdominal Cases....
.....Chas. E. Humiston
3. The Diagnosis and the Treatment of Carcinoma of the Cervix.....Henry Schmitz

DEKALB COUNTY

April 9, 1925, The DeKalb County Medical Society, with twenty-four present, met at the Glidden Hospital, DeKalb, Ill.

Following the dinner, served by the Hospital, Vice-President S. L. Anderson called the meeting to order. Dr. Howard M. Edwards of Lee and Dr. Deane F.

Brooke of Genoa were unanimously elected members of the Society.

A letter from President Geo. W. Nesbitt was read, asking that he be relieved of the duty of presiding at the meetings.

Moved by Dr. R. A. Wright and seconded by Dr. E. B. Neff that this request be granted, but that Dr. Nesbitt be retained as president during 1925 and cordially invited to attend all meetings. The motion was unanimously carried. Moved by Dr. J. W. Ovitz and seconded by Dr. J. A. Badgley that the closing of our offices at noon Thursdays from May 1st to Oct. 1st be made a county affair; carried.

Dr. Emory B. Neff of DeKalb gave a most able lecture on the "X-Ray Diagnosis of Gastro-intestinal Conditions," illustrating the same by means of x-ray films. Dr. S. L. Anderson led the discussion on this subject.

Dr. J. S. Rankin gave a very interesting lecture on the "Value of the X-Ray in Fractures." Dr. Rankin's talk was also illustrated by x-ray films of the different cases the doctor has attended.

A rising vote of thanks was given Miss Medendorp, the superintendent of the Hospital and her assistants for the royal entertainment.

CLIFFORD E. SMITH,
Secretary.

ROCK ISLAND AND SCOTT COUNTY

The Rock Island and Scott County Medical Societies met in Moline, Ill., in joint session, Tuesday, April 14, 1925, at the LeClaire Hotel. Dinner was served at 6:30 to eighty physicians, and an excellent program given by Dr. D. R. Bergman of the Mayo Clinic, Rochester, Minn., and Dr. Chas. Elliott, Chicago, Ill., goiter specialist.

Dr. Bergman's address was on "Practical Considerations in the Diagnosis of Chronic Abdominal Disease."

Dr. Elliott's address was on "The Treatment of Hyperthyroidism." Both addresses were well received.

A moving picture featuring the importance of periodical health examinations was viewed by the physicians immediately after the addresses.

The following officers were elected for the year: president, Dr. A. E. Williams, Rock Island; first vice-president, Dr. D. R. Nelson, Moline; vice-president, Dr. R. W. Hardinger, East Moline; secretary, Dr. J. H. Fowler; treasurer, Dr. C. C. Ellis, Moline; medico legal advisor and delegate, Dr. A. T. Liepold, Moline; alternate, Dr. Williams, Rock Island.

DR. J. HENRY FOWLER.

Marriages

SILBER C. PEACOCK, Chicago, to Miss Ruth Sarah Pearce of Bowen, Ill., at Galesburg, March 28.

JOHN RITTER SUTTER to Miss Elizabeth Katherine Drexelius, both of Edwardsville, Ill., at St. Louis, March 7.

Personals

Dr. Harry E. Mock addressed the Chicago Society of Industrial Medicine and Surgery April 6 on "Trauma and Malignancy."

Dr. Robert P. Parsons, U. S. N., Great Lakes, Ill., addressed the Chicago Neurological Society, April 16, on "Tryparsamide and Sulpharsphenamin in the treatment of Neurosyphilis."

Dr. William R. MacAusland, Boston, addressed a joint meeting of the Chicago Orthopedic Club and Railroad Surgeons at the University Club, April 10, on "The Present Status of Arthroplasty."

Dr. Jacob J. Mendelsohn addressed the Chicago Tuberculosis Society, April 16, on "Some Phases of Tuberculosis Dispensary Work," and Dr. Alexander A. Maximow on "Tuberculosis in Vitro."

Dr. Ludvig Hektoen and William H. Welker, Ph.D., addressed the Chicago Pathological Society, April 13, on "Crystalline Proteins in the Urine."

Dr. Dean Lewis, formerly professor of surgery, Rush Medical College, and recently at the University of Illinois College of Medicine, has been appointed professor of surgery at Johns Hopkins University Medical Department, and surgeon-in-chief, Johns Hopkins Hospital, Baltimore, to succeed the late Dr. William S. Halstead. Dr. Lewis will take up his new duties in September.

News Notes

—The contract has been let for the \$1,000,000 addition to the Augustana Hospital.

—Passavant Hospital will not receive patients after May 1. This hospital will conduct a drive for \$1,000,000 for a new building.

—West side professional schools more than reached their goal of \$100,000, in March, for the new West Side Student Y. M. C. A. This, with \$50,000 raised by the students themselves and \$50,000 donated by Dr. Truman W. Brophy, makes \$200,000 toward the \$750,000 building to be erected at Congress and Wood streets. The schools participating were Rush Medical College; the medical, dental and pharmacy schools of the University of Illinois; the Chicago College of

Medicine and Surgery, and the Chicago College of Dental Surgery. Each of ten physicians provided one \$1,500 room in the new building, as did the staff of the Norwegian-American Hospital.

—The American Legion is conducting a campaign to raise an endowment fund of \$5,000,000, the income of which will guarantee a perpetual financial basis for the Legion's program of rehabilitation and child welfare. The American Legion is working to restore to health every man who suffered wounds, disease and shock incident to war. Intended to supplement the work of the government, the American Legion Rehabilitation Service will go on so long as there is a legionnaire. In providing a home for the orphan of every man who fell in the nation's service, the Legion seeks the assistance of every established agency devoted to child welfare, and to all such it will give assistance. The physicians of Cook County have been asked to contribute to this endowment fund a total of \$25,000. Dr. John S. Nagel, 25 East Washington Street, is chairman of the medical division.

—In its thirty-fifth annual report, the Visiting Nurse Association of Chicago is defined as a field hospital furnishing skilled nursing to the sick in their homes, no nursing being given in any home after the first visit unless there is a physician in attendance. The association made 255,080 visits in homes in this city during 1924. There was an average of six visits to each patient, of whom nearly 13,000 were mothers and newborn babies. Visits are free to the poor, but a minimum charge is made to patients who can pay a small fee. An insurance company and four corporations in Chicago pay the association for visiting their sick industrial policyholders and employees. There are endowed nurses, special endowments in the form of memorial, scholarship, or relief funds and nurses supported by special subscriptions. The association has no paid solicitors, the entire budget being raised by the directors by personal solicitation. The association is in a normal financial condition, more than \$50,000 being added to its endowment in 1924. The amount necessary to endow the support of a nurse is \$30,000.

—The Association for the Study of Allergy

will meet in the Japanese room of the Ambassador Hotel in Atlantic City, Tuesday, May 26, at 9 a. m. in connection with the annual meeting of the American Association.

—L. S. Matthews and Company have removed to larger quarters at 3554 Olive Street, St. Louis.

—The new Franklin Boulevard Hospital and Training School for Nurses, located at 3230-40 Franklin Boulevard, is now in operation with 85 bed capacity and complete modern equipment. Inspection by members of the medical society is cordially invited.

—The next examination conducted by the American Board of Otolaryngology will be held at the Ambassador Hotel, Atlantic City, on Tuesday, May 26, at 9 a. m.

—Application blanks may be obtained from Dr. H. W. Loeb, Secretary, 1402 South Grand Boulevard, St. Louis, Missouri.

DEATHS

ISAAC N. ALBRIGHT, Chicago; Albany Medical College, 1885; aged 70; died, March 22, of organic heart disease.

FRANK E. AUTEN, Belleville, Ill.; University of Pennsylvania School of Medicine, Philadelphia, 1895; a Fellow A. M. A.; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 61; died, Dec. 21, 1924.

HOMER MARKWELL CLARK, El Paso, Ill.; Chicago Medical School, 1922; aged 39; died, March 10.

ALFONSO CLEMENS CZIBULKA, Warren, Ill.; University of Vermont College of Medicine, Burlington, 1889; Spanish-American War veteran; aged 56; died, March 25, of pneumonia.

CHARLES WELLINGTON FALLIS, Danville, Ill.; College of Physicians and Surgeons, Chicago, 1885; aged 64; died, March 16, at St. Elizabeth's Hospital, of heart disease.

HARRY GILBERT MARTIN, Chicago; Harvey Medical College, Chicago, 1902; aged 49; died, March 29, of heart disease.

EDWY C. OGDEN, Joliet, Ill.; Hahnemann Medical College and Hospital, Chicago, 1879; aged 65; died, February 28.

IRA J. SEXTON, Summerfield, Ill.; Jenner Medical College, Chicago, 1912; a Fellow A. M. A.; aged 50; died, March 10, at St. Louis, of angina pectoris.

ELMER E. TANSEY, Chicago; Rush Medical College, Chicago, 1895; a Fellow A. M. A.; formerly on the staffs of the Washington Park and South Chicago hospitals; aged 60; died, April 7, of renal calculus and nephritis.

G. WILBERT WATTS, Chicago; Northwestern University Medical School, Chicago, 1894; aged 55; died, March 26, of bronchopneumonia.

JOHN ALFRED WHEELER, Lincoln, Ill.; Northwestern University Medical School, Chicago, 1896; a Fellow A. M. A.; formerly member of the state legislature; medical director of the Lincoln State School and Colony for Feeble-Minded, where he died, April 3, of coronary thrombosis, following bronchopneumonia, aged 53.

WILLIAM EDWIN WINSKEL, Chicago; Trinity Medical College, Toronto, Ont., Canada, 1877; aged 71; died, in February, at the South Chicago Hospital, of cerebral hemorrhage.

FREDERICK HENRY YORKE, Foosland, Ill., Rush Medical College, Chicago, 1885; aged 75; died, March 17, of heart disease.

JOHN S. LEWIS, Carbondale, Ill.; American Medical College, St. Louis, 1878; formerly a bank president; aged 73; died, March, 2.

THOMAS JAMES WATKINS, Chicago; well known as a leader in gynecology, died suddenly of heart disease while in his office, April 1, aged 61 years. He was born in Utica, N. Y., July 6, 1863; was graduated at the Adams (N. Y.) Collegiate Institute, and attended the Medical Department of the University of Michigan from 1880 to 1883, receiving his degree in medicine from the Bellevue Hospital Medical College of New York University in 1886. After serving an internship at St. Peter's Hospital, Brooklyn, from 1886 to 1888, and at the Woman's Hospital of New York State from 1888 to 1889, he became assistant in gynecology at Northwestern University Medical School, in Chicago, serving in this position until 1896, at which time he became associate professor of gynecology. In 1900, he was made clinical professor, and since 1916 has been professor. He had served as attending gynecologist at St. Luke's since 1894; at the Wesley Hospital from 1896 to 1914, and at the Mercy Hospital from 1900 to 1909. He was a member and ex-president of the American Gynecological Society, a fellow of the Institute of Medicine of Chicago, and an active worker in local medical organizations. In 1919, he was chairman of the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association. Dr. Watkins was well known as a highminded leader in the affairs of medicine in his community, and also as an inspiring teacher of the many students who were members of his classes during the thirty-four years of his association with Northwestern University.

JOSEPH INGRAM MERSHON, Mt. Carroll, Ill.; University of Illinois, College of Medicine, 1912; intern at University and North Chicago Hospitals, engaged in General Practice at Mt. Carroll, Ill., for a number of years, recently specializing in eye, ear, nose and throat at Marshfield, Oregon, died in Good Samaritan Hospital, Portland, Oregon, of atrophy of the liver, March 22, 1925, following an exploratory operation, aged 41 years.



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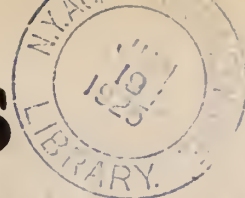
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PRESIDENT, ILLINOIS STATE MEDICAL SOCIETY, 1925-1926

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
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No. 6

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Membership correspondence to Dr. Harold M. Camp, Monmouth, Ill.

Society proceedings and news items and changes in the mailing list to Dr. Henry G. Ohls, Managing Editor, 7026 Bosworth Avenue, Chicago.

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Editorial

THE QUINCY MEETING

The 75th annual meeting of the Illinois State Medical Society adjourned May 21, 1925, after what might be justly termed the most interesting session held in recent years.

There was a splendid attendance in spite of the fact that the meeting was held only four days before the opening of the A. M. A. and the additional fact that it occurred concurrently with the European tour of the Tri-State Medical Society.

From the scientific standpoint the papers and discussions at this meeting were of a very high average. It would be quite impossible to give a complete program of the work that was discussed in the various sessions; for these included a range of topics which included the practice of medicine, general and abdominal surgery, obstetrics and gynecology, ophthalmology, laryngology, otology and rhinology, diseases of children, pharmacology and therapeutics, pathology and physiology, stomatology, nervous and mental diseases, dermatology and syphilology, preventive and industrial medicine and public health, urology, orthopedic surgery, gastro-enterology and proctology.

The house of delegates met regularly and transacted a great amount of business. There was a remarkable absence of dissension or disagreement among the members of the house of delegates. Concerted convictions on politics, a unity of purpose were characteristics of the activities of the house of delegates. The reports of the numerous elective and appointive committees were the best ever presented to the house of delegates and demonstrated conclusively that the councilors and members of the various committees presenting the reports are alive to the problems confronting the profession.

This meeting was the diamond jubilee celebration of the Illinois State Medical Society as well as the seventy-fifth anniversary of the Adams County Medical Society. The uniform courtesy

and warm cordiality of the doctors of Quincy and the Adams County Medical Society and their matchless efforts to make the diamond jubilee celebration a memorable occasion, were indicative for the universal desire among members of the medical profession for a united state organization.

An incident that dampened the order of the attending members was the absence of Dr. L. C. Taylor, the president of the Society, who was unable to attend because of illness. Appropriate resolutions expressing the good wishes of the members in attendance for Dr. Taylor's speedy recovery were unanimously adopted by the house of delegates and a copy ordered sent to Dr. Taylor at his home in Springfield.

Dr. Mather Pfeifferberger of Alton, was elected president-elect. Dr. J. C. Krafft of Chicago becomes the active president of the Illinois State Medical Society. Dr. Harold M. Camp, of Monmouth, was re-elected secretary. The names of other officers and the proceedings of the house of delegates will appear in the July issue. We are confident that the newly elected officers will carry on a strenuous campaign of efficiency in behalf of the interests of the profession that has characterized the term of the predecessors.

I AM SURE THAT DOCTORS WILL BE GLAD TO DONATE THEIR SERVICES. SOCIAL AND WELFARE WORKERS CONSIDER THE MEDICAL PROFESSION AN ELEEMOSYNARY ORGANIZATION.

Dr. C. D. Selby, the newly installed president of the Ohio State Medical Society, in his inaugural address, 1925, condemned the present day trend of health departments to enter into general practice of medicine and wound up by referring to welfare workers and social uplifters as follows:

"What has already been said about departments of health applies more or less to social and welfare workers in general. If any real menace exists, it is in the socialization of medicine by the voluntary health and welfare agencies."

As an effective illustration of the unbalanced welfare trend Dr. Selby told of an occurrence in a typical Ohio city where "child welfare" was being emphasized. One of the prominent "social-minded" women leaders of the community

called upon the president of one of the men's civic luncheon clubs and stated something as follows: "Most of the civic clubs have fine programs of work—the such and such club is interested in the crippled child; the such-other club is interested in the under-nourished child; the such-other club is interested in the child with restricted opportunities; and still another club is interested in fresh-air camps and recreation grounds. I have a splendid suggestion to make to your club. Why not adopt as your program a movement to see that every child in the community has a chance to have his tonsils removed? I'm sure the doctors will be glad to donate their services."

SOMETHING IS WRONG WITH OUR PRESIDENT DAY MEDICAL EDUCATION? IS OUR MEDICAL EDUCATION COURSE TOO HIGHLY TECHNICAL?

Dr. William D. Haggard, president of the American Medical Association, before the House of Delegates of the A. M. A. at Atlantic City, June 25, 1925, spoke of our present day medical education problem as follows:

Mr. Speaker and Members of the House of Delegates:

Medical education in the United States has had the most remarkable change in the last fifteen years that has ever been witnessed. It was inaugurated by the work of the Council on Medical Education of the American Medical Association, and the survey made by the Carnegie Foundation for the Advancement of Teaching in 1910. Nothing can be added to the medical course at the present time. It is very complete, and if there is any criticism at all, it is probably too highly technical. Not much relief can be expected from the medical colleges themselves, as they are doing the best they can. It should be the function of the House of Delegates, which is the legislative body of the American Medical Association, to make some effort to curtail the length of medical education at the present time, not with the view of making it less complete, but of encompassing it in a shorter time. It is well known that the average age of the men entering practice now is 27 or 28, which is too advanced an age. Economic conditions prevent a man from carrying the financial load so long. Many of them do it with large debt to hamper their early years of practice, and some become

discouraged and fall by the wayside. Some plan should be evolved by the House of Delegates that will save one or two years in the average time at which the medical student enters medicine. One year, at least, could be saved in the high school. This is being done in many high schools by the four quarter period during the year, without a compulsory three months annual vacation, so that a student can save that time, and graduate at an average age of 16 or 17. Most of the work in the first year of high school is an epitome of the work in the grammar school. The first year in college is largely a review of high school. In the medical schools the work could be accomplished in three, three and a half, or three and three-quarters years, if two things were provided: First, the four quarter system, which certainly a few schools can manage very easily, and, second, some changes and uniformity in the requirements of the state boards of licensure about the period requisite for graduation.

HEALTH EXPOSITION AND BABY SHOW

Health Exposition and Baby Show can be on a scientific ethical basis and be successful. This has just been demonstrated in Chicago. Such expositions should be conducted under the sponsorship of the local county or state medical societies. This is the protective wing under which educational activities belong. The Illinois State Medical Society has just proven this in Chicago.

Where a blow at lay dictation of infant welfare and a practical demonstration of the self sacrificing generosity of the medical profession found spectacular delivery through the successful first annual health exposition sponsored by the Illinois State Medical Society.

Laid on so firm a foundation, there is no question but that this exhibition should be held annually. From a standpoint of public welfare the baby show of the exposition alone makes this point evident. While the physicians in charge donated to over 10,000 babies a physical examination that would have cost \$100 elsewhere, or practically a million dollars worth of professional services, there is another item to be reckoned with. Outside from the actual physical gain to the children themselves, and to those children of acquaintances who will have relayed to them through the next few years, takes of the experiences and instructions received at this show, there is yet another angle to be considered.

While the examining physicians as individuals received no cash remuneration from any of the applicants every doctor even those indirectly connected with the exposition feels amply repaid through the knowledge that this exhibition was an unusual educational center. There was loosed at this conference more vital, emphatic information about health and disease than could have been disseminated otherwise over a period of years. Facts and conditions set forth there went directly from doctor to individual . . . there were no lay agencies intervening a supervising.

Further, in the public press throughout the country, the Illinois State Medical Society received due credit for its labors in the way of public welfare education. Clippings were sent in from every state in the union with commendatory comment upon this endeavor of the Illinois State Medical Society, and citing the society as a leader among educators in health betterment work.

Such editorial commendation is priceless. No money, not even millions of dollars could have purchased this, except in a subsidized organ.

EXHIBITORS' DIRECTORY

National Baby Congress and Health Exposition, American Exposition Palace, Chicago, May 2-10, 1925, Sponsored and Supervised by the Illinois State Medical Society Enforcing Ethical and Scientific Standards of the American Medical Association.

The committee on medical supervision, Illinois State Medical Society, recommends the following exhibitors to the favorable consideration of physicians.

LIST OF EXHIBITORS APPROVED BY THE ILLINOIS STATE MEDICAL SOCIETY

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- CHICAGO ICE CREAM MANUFACTURERS ASSOCIATION, 1422 East 67th Place, Chicago. Ice cream manufacturers.
- CHICAGO MEDICAL SOCIETY (E. J. Doering). Publisher of the Chicago Medical Society Bulletin and many other medical bulletins and journals.
- CHICAGO MEDICAL SOCIETY MILK COMMISSION. Certified milk is a clean, fresh, raw, safe milk for infants and invalids.
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- CHICAGO PORTRAIT PHOTOGRAPHERS ASSOCIATION, 509 S. Wabash Ave., Chicago. Photographs of your family and yourself are lasting memories. Have yours taken.
- CHICAGO WHOLESALE FISH & OYSTER DEALERS ASSOCIATION, 236 No. Clark St., Chicago. Exhibiting research data relative to food values of fish, oysters and seafoods.
- CHIPPEWA SPRING WATER COMPANY, 527 Roosevelt Road. Distributors Chippewa Natural Spring Water, the Purest in the World; Chippewa Ginger Ale, Root Beer and Carbonated Water.
- CHRISTIANSEN BROS. DAIRY CO., 2700 No. Campbell Ave., Chicago. Where cleanliness is permanent. We invite your inspection. Learn why a bottle of safe milk is a bottle of health.
- CLUB ALUMINUM COMPANY, COOK WITHOUT WATER, and retain the natural health-giving minerals of food. Use Club Aluminum Cooking Utensils. Club Aluminum Co., 1238-50 Fullerton Ave., Chicago, Ill.
- CONTINENTAL SCALE CO., 2126 W. 21st Pl., Chicago. Health scales. Your weight is an index to your health. Every well regulated home should have thoroughly dependable scales such as we make.
- CORCORAN MANUFACTURING COMPANY, Cincinnati, O. Manufacturers of "Not-a-Toy." Health and Happiness for Baby, relief from care of Mother.
- CORN PRODUCTS REFINING COMPANY, 200 E. Illinois St., Chicago. Displayed KARO—featuring its use as a carbohydrate in milk modification for infant feeding—MAZOLA, ARGO and KINGSFORDS CORN STARCHES, and LINIT STARCH.
- CRANE CO., 836 No. Michigan Ave., Chicago. Exhibiting a twice-fired vitreous lavatory, a dental lavatory, a baby's bath and a shower bath.
- DAIRY DRINK CO., 2825 Lexington St., Chicago. Pure wholesome milk contributes to health. It becomes more palatable and nutritious when combined with chocolate. Drink "D. D."
- EARNSHAW KNITTING COMPANY, 325 W. Jackson Blvd., Chicago. "VANTA BABY GARMENTS," manufactured without pins or buttons, guaranteed non-shrinkable; unnecessary to turn baby to put on garments. Recommended by doctors, nurses and hospitals.
- H. G. FISHER & COMPANY, 2322 Wabansia Ave., Chicago. Dealing in physicians' supplies.
- FOREST GLEN CREAMERY CO. A recipe for pink cheeks and sturdy little bodies. Give your youngsters Forest Glen Milk—Guaranteed Pure. 3737 Southport Ave. Lakeview 1158.
- THE HOOVER COMPANY, 1408 Republic Building, Chicago. Oldest and largest makers of electric cleaners. More than a million and a half satisfied users. Only "The Hoover Beats As It Sweeps As It Cleans."
- HORLICK'S MALTED MILK CO., Racine, Wis. Exhibit "Horlick's," the ORIGINAL Malted Milk for infants, invalids and convalescents. Also Horlick's Food, their maltose-dextrin milk modifier.
- R. C. HULL, 4727½ Ellis Ave., Chicago. Gold Medal Garnishing Knives.
- HYDROX CORPORATION. Main office and plant 24th St. at the Lake, Chicago. Manufacturers of Hydrox Ice Cream (purer because carbonated) and Hydrox Gingerale and other carbonated beverages.
- HYDROX CORPORATION, 24th Street at the Lake, Chicago. Manufacturers of Hydrox Ice Cream—"Purer Because Carbonated"—Hydrox Ginger Ale and other carbonated beverages.

- HYNISON, WESCOTT & DUNNING, Baltimore, Md. Mercurochrome and other pharmaceuticals. The Illinois Bell Telephone Company, 212 West Washington St., Chicago.
- J. G. INGRAM & SON, London, England. Manufacturers of Ingram's Transparent Nipples, the standard all over the world. Ernest Monnier, Inc., Boston, Mass. United States agents.
- JANES DIETARIAN CORPORATION, 7088 South Chicago Ave. Janes Chocolate Malted Milk Syrup, Cream of Cocoa Malted Milk, Janes Diet Loaf. Write for circular.
- THE JELL-O Co., Inc., LeRoy, N. Y., Chicago office 326 W. Madison St. Manufacturers of Jell-O and D-Zerta, (a jelly powder for diabetics). Both put up in commercial and institution packages.
- F. W. JONES, 4237 Indiana Ave., Chicago. Cleaning Cream, Massage Cream, Shampoo, Head Lotion (Toilet Goods).
- JAS. S. KIRK & Co., 1232 W. North Ave., Chicago. Scientific soapmakers since 1839. Manufacturers of the famous "Jap Rose Health and Beauty Soap," Juvenile Baby Bath Castile, Green Soap for physicians and surgeons and other fine toilet and household soaps. All pure soaps—The Standard of Purity.
- J. L. KRAFT & BROS. CHEESE Co., 400 Rush St., Chicago. Manufacturers of Kraft Cheese in tins and in foil. Cheese—a health food, was the keynote of the Kraft Cheese Company display. Samples of cheese and circulars of food facts about cheese were distributed.
- KREN & DATO, 936 N. Michigan Boulevard, Chicago. Dealers in real estate.
- MATT MILLER, Laundry, 1637 West 22d St., Chicago. The scientific laundering of all washable fabrics.
- MELBA MANUFACTURING COMPANY, 4237 Indiana Avenue, Chicago, manufacturing chemists and perfumes. MELBA MANUFACTURING COMPANY maintained an expensive and very beautiful booth during the BABY CONGRESS AND HEALTH EXPOSITION, for free distribution of products of special interest to babies, nurses and mothers. They were most generous in supplying BABY POWDER, MASSAGE CREAM AND TOILET WATER to the BABY HOUSES for the entire week, and also presented the attending physicians with POWDER SUPPLIES for professional use. Their samples of MASSAGE CREAM, SHAVING CREAM, SHAMPOO, SKIN LOTION AND PERFUME were much in demand, and this POPULAR FIRM impressed its name firmly in the minds of the thousands of men and women attending the CONGRESS. BABY O'HARA, the prize baby, won the beautiful MELBA GOLD BASKET, containing CREAMS, POWDERS, BATH SALTS, TALCUMS, PERFUME, TOILET WATER, everything to keep both the young lady and her mother luxuriously groomed for many days to come.
- METROPOLITAN LIFE INSURANCE COMPANY, 140 N. Dearborn St., Chicago.
- IRA J. MIX DAIRY COMPANY, 361 E. 30th St., Chicago. Mix Mix's milk with your menu. From Country to You in Glass. Call Victory 1040.
- ERNEST MONNIER, INC., 127 Federal St., Boston, Mass. U. S. Agent for Ingram's Transparent Nipples.
- NATIONAL MILK COMPANY, 2501 Southport Ave., Chicago. Distributors of high grade milk, cream and dairy products.
- NESTLE'S FOOD COMPANY, INC., 130 Williams St., New York City. (Chicago Representative, Leon A. Turner, P. O. Box 58). Mfg. Baby Foods, Nestle's Lactogen Milk Food, Malted Milk.
- THE NON-PTOSIS SERVICE, 1013 Marshall Field Annex, Chicago. Stands for better health and higher spirits. The support produced in any ptosis garment is a brace that has no equal.
- NORTHWESTERN STEEL & IRON WORKS, 35 S. Dearborn St., Chicago. Manufacturers of National Pressure Cookers. They save time and money and are endorsed by leading domestic science experts.
- NORTH SIDE REALTY COMPANY, 77 West Washington St., Chicago, Dempster Golf Course. Subdivision, Niles Center.
- ORANGE CRUSH BOTTLING COMPANY, 4900 West Flournoy St., Chicago. Manufacturing Orange Crush, a fruit flavored carbonated beverage.
- THE ORIGINAL ARCHAMBAULT CLEANING & DYEING Co., 1555-2254-3513 West Madison St., Chicago, a method of French cleaning includes sterilization of garments which resists bacteria and promotes health. The health of civilized nations depends upon intelligent use of its advantages.
- PELOUZE MANUFACTURING Co., 232 East Ohio Street, Chicago, Illinois. Manufacturers of Infant, Dietetic, Photographic, Household, Postal and Dairy Scales.
- PREMIER SERVICE COMPANY, 4406 Broadway, Chicago. Manufacturers of Premier Duplex Vacuum Cleaners. Branches and service stations in principal cities. Cleans floors and rugs for baby's sake.
- THE SANITARY DISTRICT OF CHICAGO. Working exhibit of sewage disposal plants in operation. General exhibit of the Sanitary District's activities. Rest Room.
- SCHOENHOFEN COMPANY, Manufacturers of Edelweiss Light and Dark Beer (non-alcoholic), Edelweiss Tonic and Green River.
- SCHOENHOFEN COMPANY, Chicago. Manufacturers of Green River, the Snappy Lime Drink; Edelweiss Ginger Ale; Edelweiss Cereal Beverage; Edelweiss Lemon, Orange, Cherry and other fruit sodas.
- SCHUTTER-JOHNSON CANDY COMPANY, 20 N. Jefferson St., Chicago. Old Nick Candy, a chocolate milk nut candy bar. Mothers and fathers, boys and girls, showed their appreciation of the quality of Schutter's Old Nick candy at the National Baby Congress and Health Exposition by pronouncing Old Nick "for a nickel," the most delicious chocolate nut caramel candy they had ever tasted.
- SECURITY ELECTRIC MANUFACTURING COMPANY, 2635 Canton St. Among the exhibitors at the National Baby Congress and Health Exposition was the Security Electric Mfg. Co., manufacturers of Security Electric Heating Pads.

SETHNESS COMPANY, 659 Hibbie St., Chicago. Manufacturers of "Drinkmor," the appetizing hunger and thirst satisfying Dairy Drink. A scientific, dietetic preparation combining whole pasteurized milk, granulated cane sugar, pure barley malt and chocolate.

DRINKMOR MALTED CHOCOLATE MILK. The appetizing hunger and thirst dairy drink.

JOHN M. SMYTH COMPANY, 701 West Madison St., Chicago, dealer in furniture, household furniture, etc.

STANDARD CAP & SEAL CORP., 1200 Fullerton Ave., Chicago. Our Hood Seals protect your milk and cream from flies, fingers, dirt and germs. Hood Sealed Milk is cleaner, richer, sweeter milk.

CHAS. A. STEVENS, 19 N. State St., Chicago. Breeder of Fine Toggenburg Milk Goats, Exhibiting for Brook Hill Farm, producers of Brook Hill Certified Milk. Did you see the goats at the National Baby Congress? Would you like a catalogue of goats for sale? If so, address Chas. A. Stevens, 4704 Kenwood Avenue, Chicago.

STOVER Co., 445 E. Erie St., Chicago. Distributors of "Frigidaire" electric refrigeration.

SUNKIST PIE COMPANY, 2735 Indiana Avenue, Chicago. Manufacturers of pie crust.

TINY TOTTER COMPANY, Penn Ave. and B. & O. Railroad, Dayton, Ohio. Dealer in children's toys. Makers of Tiny Toter for Tiny Tots, Tiny Walker, Tiny Doll Sulky.

UHLEMAN OPTICAL COMPANY, Mallery Bldg., Chicago. Dealer in optical supplies.

SIDNEY WANZER & SONS, 21 E. 30th St., Chicago. Chicago Pioneer Purveyors of Dairy Products—established 1857. Milk from inspected herds on carefully selected farms.

WIELAND DAIRY Co., 3642 Broadway, Chicago. Distributors of Milk, Cream, Butter, Eggs and Cottage Cheese. From country to you in glass. For health's sake, use Wieland's.

WILLIAM WRIGLEY COMPANY, 400 N. Michigan Ave., Chicago. Dealer in chewing gum.

ZION INSTITUTIONS & INDUSTRIES, Zion, Illinois.

PRIZES AWARDED AT THE NATIONAL
BABY CONGRESS AND HEALTH EX-
POSITION, CHICAGO, MAY 2-10, '25,
UNDER THE SUPERVISION OF
THE ILLINOIS STATE MED-
ICAL SOCIETY

GRAND AWARD

Five hundred dollars to the highest scoring boy or girl between the ages of 1 and 6 years. This amount is now on deposit in the Boulevard Bridge Bank, contributed by the Chicago Portrait Photo Association.

Silver cup presented to the mother of the highest scoring child. Contributed by the Chicago Herald Examiner.

Three silver cups to highest scoring boy under 1 year—highest scoring girl under 1 year—highest scoring pair of twins. Contributed by Nestle Food Company, New York, N. Y.

Two hundred dollar Add-A-Pearl necklace to the highest scoring girl in the Healthy Youth Contest (between the ages of 6 and 18 years). Contributed by the Add-A-Pearl Company.

White gold watch, 19 jewel to the highest scoring boy in the Healthy Youth Contest (between the age of 6 and 18 years). Contributed by the Illinois State Medical Society.

Northwestern Railroad and Pullman tickets to and from Eagle River, Wisconsin (summer resort) to the highest scoring woman in the Adult Health Contest (over 18 years of age). Contributed by the Illinois State Medical Society.

Northwestern Railroad and Pullman ticket to and from Eagle River, Wisconsin (summer resort), to the highest scoring man in the Adult Health Contest (over 18 years of age). Contributed by the Illinois State Medical Society.

Five hundred dollars equity in a lot located in Evanston subdivision to the highest scoring woman in the Adult Health Contest, open to all over 18 years of age. Contributed by the North Shore Realty Company.

DIVISION AWARDS

Division 1, children 6 to 12 months of age—	
Highest scoring boy	\$25.00
Highest scoring girl	25.00
Division 2, children 12 to 36 months of age—	
Highest scoring boy	\$25.00
Highest scoring girl	25.00
Division 3, children 36 to 72 months of age—	
Highest scoring boy	\$25.00
Highest scoring girl	25.00
Division 4, twins 6 to 72 months of age—	
Highest scoring pair.....	\$25.00
2nd highest scoring pair.....	15.00
Division 5, triplets 6 to 72 months of age—	
Highest scoring set	\$25.00
2nd highest scoring set	15.00
Division 6, colored children 6 to 72 months of age—	
Highest scoring boy	\$25.00
Highest scoring girl	25.00

SPECIAL AWARDS

The following banks gave \$25.00 savings account for the highest scoring children in their respective neighborhoods:

Ashland State Bank.
Boulevard Bridge Bank.
Bowmanville National Bank.
Bankers State Bank
Capitol State Savings Bank.
Citizens State Bank of Chicago.
Fidelity Trust & Savings Bank.
Garfield Park State Savings Bank.
Inland Trust and Savings Bank.
Logan Square State & Savings Bank.
Madison & Kedzie State Bank.
Phillips State Bank.
Roosevelt State Bank.
Second Security Bank of Chicago.
State Bank & Trust Company.
Suburban Trust & Savings Bank.
Washington Park National Bank.
West Side Trust and Savings Bank.
Liberty Trust & Savings Bank.

STATUS OF DATA BY COMMITTEE OF THE MEDICAL HISTORY OF ILLINOIS

DATA PROCURED FOR THE MEDICAL HISTORY
COMMITTEE TO JUNE 3, 1925

The Chicago Historical Society Library contains histories of the counties covering a period of about thirty years, from 1850 to about 1880, but very little after that.

Fifty-two (52) counties have been covered:

Adams	Lake
Alexander	LaSalle
Bond	Lee
Boone	Livingston
Brown	Logan
Bureau	Marshall
Carroll	Mason
Champaign	McDonough
Christian	McHenry
Clark	McLean
Coles	McNard
Cook	Mercer
Crawford	Montgomery
Cumberland	Morgan
DcWitt	Ogle
Douglas	Peoria
Fulton	Piatt
Hancock	Schuyler
Henderson	Scott
Iroquois	Vermillion
Jackson	Warren
Jasper	Woodford
Jefferson	Kendall
Jo Daviess	Sangamon
Kane	Stephenson
Knox	Whiteside

Fifty (50) remain to be done:

Calhoun	Marion
Cass	Massac
Clay	Monroe
Clinton	Moultrie

DeKalb	Perry
DuPage	Pope
Edgar	Pulaski
Edwards	Putnam
Effingham	Pike
Fayette	Randolph
Ford	Richland
Franklin	Rock Island
Gallatin	Saline
Greene	Shelby
Grundy	Stark
Hamilton	St. Clair
Hardin	Tazewell
Henry	Union
Jersey	Wabash
Johnson	Washington
Kankakee	Wayne
Lawrence	White
Macon	Will
Macoupin	Williamson
Madison	Winnebago

The Chicago Historical Society Library has nothing on the following counties:

Ford	Kankakee
Franklin	Saline
Gallatin	Tazewell
Hamilton	

The Chicago Historical Society Library has very little on the following counties:

Carroll	Moultrie
Calhoun	Peoria
Edgar	Perry
Effingham	Pulaski
Fayette	Richland
Hardin	Schuyler
Johnson	Union
Lawrence	Warren
Mercer	Washington
Monroe	White

There is nothing in this library on the following counties up to 1850:

Ford	Saline
Franklin	Tazewell
Gallatin	Calhoun
Hamilton	Johnson
Kankakee	

There was an insufficient amount of material at this library on the following counties:

Boone	McHenry
Carroll	McLean
Clark	Ogle
Crawford	Sangamon
Cumberland	Schuyler
Kane	Perry
Marshall	Stephenson
McDonough	Whiteside

Much collateral data has been collected by the Committee. Much remains to be dug out and classified. Every one should help to make this valuable history as accurate and complete as possible. *Doctor, look over your old county records* and send on the data pertaining to pioneer medicine in the Illinois country.

SUPPLEMENT

A portrait of Dr. J. C. Kraftt, President of the Illinois State Medical Society, 1925-1926, is inclosed in this issue of the JOURNAL.

Did you know that the deafened have their own particular star? Why, of course! It's Thalia (They'll hear!). Thalia is also the music of joy, who presides over symposia, comedy and pastoral poetry. That is why the deafened are always so cheerful. Hail Thalia! Star of the Deaf!

SUBSCRIBE TO THE LAY EDUCATIONAL FUND

IF THIS CONSTRUCTIVE WORK IS TO CONTINUE FUNDS MUST BE PROVIDED

The fund subscribed a year and a half ago by a comparatively few doctors, for the purpose of inaugurating the Lay Educational Bureau of the Illinois State Medical Society, is exhausted. Not one penny of the original fund was injudiciously spent. Results far-reaching in importance to the medical profession have thus far been accomplished by the Lay Educational Committee.

If the valuable work is to continue, additional money must be forthcoming. An appeal for subscriptions for this worthy enterprise was mailed to members of the profession a few weeks ago.

The lay education campaign cannot be prosecuted without funds; it must be supported by popular subscription. It is hoped that every doctor will subscribe to this worthy cause. Serious disease diverted from the incompetent will result in the saving of thousands of lives and will prevent much permanent invalidism.

This campaign will achieve two great objectives. A gradual, but ultimate restoration of the medical profession to its merited place in the public sympathy and confidence and the inestimable benefits to humanity through the consequent prevention of disease and the preservation of life.

For the convenience of those who have mislaid

their letter of appeal from the State Society, we hereby reproduce the pledge card:

Please sign and mail to the Illinois State Medical Society.

To the Officers of the Illinois State Medical Society and Members of the Council:

"I am in accord with the educational campaign, unanimously adopted by the House of Delegates of the Illinois State Society at the 1922 meeting and the plan recommended by the Council of the Society, and as evidence of my desire to cooperate with the officers of the council and of the State Society, I hereby enclose my check for \$..... to aid in defraying the expenses thereof:

MAKE CHECKS PAYABLE TO THE ILLINOIS STATE MEDICAL SOCIETY

Name M. D.

Street

City County

Sign the above pledge card, make out a check payable to the Illinois State Medical Society and mail both in an envelope addressed as follows:

From

.....
.....
.....

ILLINOIS STATE MEDICAL SOCIETY,
c/o Cashier, Sheridan Trust and Savings Bank,
4738 Broadway, Chicago, Ill.

Below is a list of subscribers from Chicago and Cook County to the Lay Educational Fund as per letter sent physicians early in April soliciting funds and cooperation.

CHICAGO AND COOK COUNTY SUBSCRIBERS

COOK COUNTY

L. H. Abele, Chicago	J. A. Dittmore, Chicago	Robert H. Hayes, Chicago
Frank W. Allen, Chicago	E. J. Doering, Jr. (Chicago Medical Society Bulletin), Chicago	Dr. Augustus A. Haerther, Chicago
Thos. D. Allen, Chicago	C. A. Earle, Des Plaines	H. E. Hickman, Chicago
W. G. Alexander, Evanston	N. M. Eherhart, Chicago	Frank A. Hill, Chicago
Geo. C. Amerson, Chicago	A. O. Ellison, Chicago	M. H. Hobart, Evanston
E. B. Anderson, Chicago	N. R. Engels, Chicago	Frank F. Hoffman, Chicago
A. M. Barothy, Chicago	R. R. Ferguson, Chicago	Wm. E. Holland, Chicago
H. R. Baumgarth, Chicago	Anders Frich, Chicago	P. E. Hopkins, Chicago
Geo. E. Baxter, Chicago	Geo. Galloway, Chicago	M. J. Huheny, Chicago
I. F. Beem, Chicago	Lester E. Garrison, Chicago	R. M. Hutchison, Chicago
F. J. Berger, Chicago	I. C. Gary, Chicago	J. H. Hutton, Chicago
J. M. Berger, Chicago	C. O. Getty, Chicago	H. E. Irish, Chicago
F. A. Berry, Chicago	John Phillip Gibbs, Chicago	Ernest A. Irons, Chicago
James G. Perry, Chicago	J. J. Gill, Chicago	Warren Johnson, Chicago
Frank Billings, Chicago	Sol M. Goldberger, Chicago	L. B. Joslyn, Maywood
M. L. Blatt, Chicago	Philip Gotlieb, Chicago	W. L. Kacin, Chicago
Warren Blim, Chicago Heights	H. V. Gould, Chicago	M. O. Kagy, Chicago
D. F. Brawley, Chicago	R. E. Graves, Chicago	Emmet Keating, Chicago
Frank L. Brown, Chicago	E. A. Gray, Chicago	G. A. Kelso, Chicago
W. L. Calloway, Chicago	Herbert W. Gray, Chicago	Robt C. King, Chicago
R. G. Collins, Chicago	G. W. Green, Chicago	H. H. Kleinpell, Chicago
N. P. Colwell, Chicago	L. L. Gregory, Chicago	J. E. Koons, Chicago
E. W. Crass, Chicago	L. Grotowski, Chicago	John M. Krasa, Chicago
Frank Deacon, Chicago	C. A. Haines, Chicago	Geo. B. Lake, Chicago
Frank H. Deane, Berwyn	F. E. Haines, Chicago	John R. Lend, Chicago
E. A. Degenhardt, Chicago	R. L. Halcombe, Chicago	Geo. R. Leonard, Chicago
Jos. B. DeLee, Chicago	F. P. Hammond, Chicago	Edmund D. Levisohn, Chicago
O. J. Dewitz, Chicago	M. L. Harris, Chicago	A. E. Luckhardt, Chicago
	J. T. Hart, Chicago	Edward Luehr, Chicago

Paul T. Lyon, Chicago
 Sidney B. MacLeod, Chicago
 P. B. Magnuson, Chicago
 L. Maywit, Chicago
 L. L. McArthur, Chicago
 Edwin McGinnis, Chicago
 M. McGowan, Chicago
 Wm. D. McNally, Chicago
 Nels C. Meling, Chicago
 W. B. Metcalf, Chicago
 A. R. Metz, Chicago
 G. A. Miller, Chicago
 C. L. Mix, Chicago
 W. E. Morgan, Chicago
 F. R. Morton, Chicago
 E. W. Mueller, Chicago
 Edward H. Ochsner, Chicago
 J. F. O'Hara, Chicago
 A. B. Oyen, Chicago

Edward Patera, Chicago
 Fred A. Patton, Glencoe
 M. Penchina, Chicago
 W. A. Plice, Chicago
 C. M. Pohl, Chicago
 Herbert A. Potts, Chicago
 R. R. Ferguson, Chicago
 Emil Ries, Chicago
 M. M. Ritter, Chicago
 C. C. Rogers, Chicago
 Lawrence Ryan, Chicago
 Alvah Sawyer, Chicago
 Chas. P. Schell, Chicago
 Chas. L. Schmidt, Chicago
 C. L. Schmidt, Chicago
 Henry Schmitz, Chicago
 C. O. Schneider, Chicago
 Fred S. Selby
 C. B. Semerak, Chicago

V. L. Sheets, Chicago
 E. W. Smith, Chicago
 Robert Sonnenschein, Chicago
 Wm. G. Stearns, Chicago
 J. G. Stromberg, Chicago
 A. C. Tenney, Chicago
 Theo Ticken, Chicago
 Max Thorek, Chicago
 I. Harrison Tumpeer, Chicago
 V. R. Vanstone, Chicago
 J. H. Walsh, Chicago
 C. J. Whalen, Chicago
 J. C. Williams, Chicago
 T. J. Williams, Evanston
 G. V. Wyland, Chicago
 A. B. Yudelson, Chicago
 Adam Yuska, Chicago
 H. Zaczek, Chicago
 L. H. Zeuch, Chicago

DOWN STATE SUBSCRIBERS TO THE LAY EDUCATIONAL CAMPAIGN FUND

B. A. Arnold, Freeport
 Frank P. Auld, Shelbyville
 O. F. Barnes, Arcola
 J. G. Barnhizer, Forrest
 C. E. Beecher, Gilson
 F. E. Beil, Mattoon
 C. Bennett, Champaign
 G. S. Betts, Canton
 R. M. Binney, Granite City, Ill.
 C. Blim, Crete
 Wm. H. Boone, Hopedale
 D. W. Bottorf, Astoria
 T. V. Boyd, E. St. Louis
 L. V. Boynton, Vermont
 Earl Brennan, E. St. Louis
 A. L. Brittin, Athens
 E. L. Brown, Bloomington
 L. S. Brown, Hillsboro
 Harry E. Brown, Tiskilwa
 T. A. Bryan, Mattoon
 J. R. Bryant, West Point
 W. F. Buckner, Watseka
 C. M. Bumstead, Monticello
 Ward P. Burdick, Rockford
 G. T. Cass, Danville
 L. R. Chapin, Canton
 A. H. Claebos, Waukegan
 John O. Cletcher, Tuscola
 E. P. Coleman, Canton
 J. E. and E. P. Coleman, Canton
 H. I. Conn, Newman
 Wm. Cooley, Peoria
 J. F. Cooper, Peoria
 F. J. Coughlin, Aurora
 R. H. Craig, Charleston
 W. L. Crawford, Rockford
 O. H. Crist, Danville
 De Kalb County Medical Society
 W. L. Crouch, Fairview
 O. J. Culbertson, East St. Louis
 A. B. Curry, Decatur
 J. C. Dallenbach, Champaign
 E. G. Davis, Lewistown
 W. A. Dew, Belleville
 A. E. Diller, Aurora
 A. B. Dudley, Charleston
 F. M. Edwards, Centralia
 A. G. Everhart, Peru
 J. Henry Fowler, East Moline
 T. O. Freeman, Mattoon
 A. D. Furry, Monticello
 J. W. Geiger, La Salle
 C. W. Goddard, Harvard

L. T. Gregory, Urbana
 W. F. Grinstead, Cairo
 Andy Hall, Mt. Vernon
 F. C. Hammitt, Hanna City
 L. A. Harney, East St. Louis
 R. O. Hawthorne, Monticello
 J. M. Hayes, Decatur
 H. G. Hirschle, Canton
 H. G. Horstman, Murphysboro
 Geo. Hoffman, Chester
 G. H. Hoffman, Kewanee
 W. D. Hohmann, Kewanee
 J. M. Holmes, Monticello
 H. C. Houser, Westfield
 A. E. Hubbard, Peoria
 N. C. Iknayan, Charleston
 W. L. Irwin, Plymouth
 Johnson Clinic, Rockford
 Solomon Jones, Danville
 C. R. Kerr, Chenoa
 R. P. Kile, Rockford
 Tom Kirkwood, Lawrenceville
 A. A. Knapp, Peoria
 L. C. Knight, Carthage
 F. J. Kotalik, Sherrard
 Herman Le Saulnier, Red Bud
 L. J. Linder, East St. Louis
 J. H. Long, Moline
 A. O. Magill, Decatur
 R. H. Maguire, St. David
 Marion County Medical Society
 O. F. Maxon, Springfield
 W. H. Mercer, Taylorville
 B. V. McClanahan, Galesburg
 J. E. McCorvie, Peoria
 McDonough County Medical Society
 J. C. McMillan, New Berlin
 R. C. McMillan, Monmouth
 John J. McShane, Springfield
 F. E. Melugin, Thomson
 Glenn E. Mershon, Mt. Carroll
 J. E. Miller, Quincy
 R. E. Miltenberger, Spring Valley
 E. B. Montgomery, Quincy
 J. R. Neal, Springfield
 C. S. Nelson, Springfield
 E. S. Nelson, Canton
 F. J. Otis, Moline
 G. C. Otrich, Belleville
 Geo. Thos. Palmer, Springfield
 Arthur Parsons, Geneseo
 Drs. Patton and Blair, Monmouth
 T. A. Pettepicce, Freeport

Mather Pfeiffenberger, Atton
 Theo. S. Proxmire, Lake Forest
 H. C. Putman, Canton
 E. W. Reagan, Canton
 L. S. Reavley, Sterling
 Henry Reis, Belleville
 J. J. Rendelman, Cairo
 D. C. Roach, Burlington
 W. R. Roberts, Cissna Park
 Rock Island County Medical Society
 Mary L. Rosensteel, Freeport
 Mary A. Sagner, Thomson
 Sangamon County Medical Society
 E. F. Scheve, Mascoutah
 P. S. Scholes, Canton
 F. C. Schurmeier, Elgin
 W. E. Shallenberger, Canton
 A. M. Shaw, Adrian
 Claude F. Shronts, Momence
 W. N. Sievers, White Heath
 E. Grant Simpson, Naperville
 C. S. Skaggs, East St. Louis
 C. D. Snively, Ipava
 Karl Snyder, Freeport
 John Huston Spyker, Decatur
 O. O. Stanley, Decatur
 P. H. Stoops, Ipava
 A. F. Stotts, Galesburg
 Harold Swanberg, Quincy
 C. D. Swickard, Charleston
 H. R. Sword, Milledgeville
 R. Tharp, East St. Louis
 G. Taphorn, Atton
 J. S. Templeton, Pinckneyville
 Chas. D. Thomas, Peoria
 L. M. Thompson
 T. H. Trainor, Maple Park
 Edward Tripple, O'Fallon
 Oscar W. Tulisalo, Rockford
 H. M. Voris, East St. Louis
 T. H. Wagner, Joliet
 Geo. A. Wash, Gibson City
 L. J. Weir, Marshall
 Whiteside County Medical Society
 R. R. Whiteside, Moline
 E. C. Williams, Downs
 A. A. Wilson, Davis
 L. H. Wiman, LaMoille
 Geo. H. Woodruff, Joliet
 C. E. Woodward, Decatur
 W. T. Zeigler, Canton

Correspondence

LAYMAN ENGAGED IN PROTECTING
MEDICAL RESEARCHTHE AMERICAN ASSOCIATION FOR MEDICAL
PROGRESS

To the Editor:—I write to ask members of the American Medical Association to give their support to the American Association for Medical Progress. This organization is a real ally in

fighting the battles for scientific medicine. The encouraging thing about the movement is that it was founded and is directed by laymen for the protection of medical research. Heretofore we have had to fight this battle alone. The honorary president is Charles W. Eliot, emeritus president of Harvard; the honorary vice presidents are Ex-Secretary Hughes, Bishop Alexander Mann, Cardinal O'Connell, President Ellen F. Pendleton of Wellesley, Ernest Thompson Seton and Owen Wister. The active officers are also nonmedical men of similar high order. Such

an organization can be much more effective than medical men can be in fighting the propaganda against medical research.

This is a movement for which we should be grateful and to which we should give active support.

There are two ways in which we can help:

1. By taking out memberships ourselves.
2. By calling the organization to the attention of laymen who have our confidence, and urging them to join.

I can testify from experience that many intelligent laymen will give their financial support if only the organization and its importance are called to their attention.

The danger of interference with medical research by misguided mischief makers is a real and present one. There are constant efforts being made to hamper it. It comes up almost every year in efforts to enact hostile laws in some state legislatures. This opposition is strongly organized and, what is not generally known, well endowed. It probably had until recently \$250,000 of endowment, and it has lately received an inheritance of \$325,000 with ironclad provision for a relentless propaganda against experimental medicine. This endowment insures permanence and continuity to this opposition and makes necessary some equally permanent and continuous activity to counteract it. It means that there are \$25,000 or \$30,000 a year in jobs, whose holders must earn their pay by keeping active. The numbers behind the propaganda are relatively small, but they consist for the most part of misguided sentimentalists and fanatics who are prejudiced and unwilling to accept the truth and whose ammunition is gross and extravagant misrepresentation. These misrepresentations have effect, because there is no efficiently recognized education of the public to counteract them. A very large part of the public will not support the movement when it knows the facts, but it is to a very great degree ignorant of the facts. Education is necessary and highly important. There has never been such a means of educating the public against these antivivisectionists and anti-vaccinationists and slanderers of the medical profession as is offered by this organization of laymen.

We should take an active interest in it.

I urge the members of our profession to give

this unique ally of medical progress their active support in every possible way, to join the association and to make a real effort to interest others in it. Annual memberships cost from \$2 to \$25; life memberships cost, in one payment, from \$300 up. Write for application blanks to the American Association for Medical Progress, 370 Seventh Avenue, New York City.

WILLIAM ALLEN PUSEY, M.D., Chicago.
President, American Medical Association.

SERIOUS LEGISLATION SITUATION

Springfield, Ill., May 29, 1925.

To the Editor:

A desperate effort will be made next Tuesday in the Legislature to pass two Osteopathic bills known as Senate Bills 285 and 288 introduced by Senator Haenisch.

285 amends the Medical Practice Act so that the osteopath may do obstetrics which includes the giving of drugs and operative surgery.

Bill 288 is a similar effort on the part of the osteopaths to do operative surgery.

Now it is imperative each councilor and local committeemen see their senators this week's end and protest against this outrageous attempt to lower the law to meet the demands of the drugless healer.

The present act specifically provides a method that will permit any drugless healer to qualify to practice medicine in all its branches by certain minimum additional education.

This is not satisfactory to the osteopath who but a few years ago was loudly proclaiming that drugs were useless and surgery unnecessary. Now they ask it all, not by the school route, but by an attempt at class legislation.

The bills should be killed on second reading.

The present law requests but 3 years professional training for the drugless healer and 7 years for the medical student, but osteopaths are willing and anxious to exchange the additional years of college for legislative favor.

If the drugless healer desires to qualify as a medical doctor he has the privilege but should not expect to enter by hiding under an attempt to get the legislature to extend to him special privilege.

These bills represent class legislation and is an unwise effort on the part of the proponents

to lower the present law relative to the protection of public health.

Interview your senator personally if possible—at least write or wire him before Tuesday.

J. R. NEAL,

Chairman Legislative Committee.

P. S.—The Chiropractors were defeated in the House last Wednesday by a vote of 53 ayes and 70 naves. A full report of this and other bills will be in our next bulletin.

J. R. NEAL.

WHY BE A FAMILY PHYSICIAN?

April 23, 1925.

To the Editor: Will you kindly publish the enclosed effusion. The concrete cases cited are true and taken from remarks made to me by a disgusted family practitioner. I asked him why he did not report these things to the proper people in the medical society? He answered, "What is the use?" I believe I convinced him that this was not the proper attitude. I promised him that I would write the JOURNAL citing his troubles in a general way.

Yours fraternally,

"Your worthy JOURNAL has for some time now been lamenting the fact that the general practitioner or family physician is disappearing. Such is undoubtedly the case, but the reasons for this have not been gone into openly and thoroughly. The general practitioner has been driven to do surgery, he has been forced to do things for which he has had no special training and for which special training is necessary. The results in the aggregate are bound to be poor and with the result for one thing that the irregular practitioners flourish. Some of the reasons that the general practitioner must break away from the lines of pure family practice, in order to make a living might be best illustrated by citing some cases. These occurred in *one* man's practice. If every man practising in Chicago would report similar cases the figures would be staggering.

Case 1. Child welfare. Doctor is treating child, welfare nurse calls, induces mother to take child to welfare station, finally induces mother to take child to *their* specialist, the general practitioner has lost the case and the family.

Case 2. Boy of 7 years has some webbed fingers, his family doctor advises them to wait before correcting the deformity. The school

nurse sees the fingers and keeps after the child and the parents until they take the child to the surgeon she knows, who corrects the deformity and the family doctor has lost another case.

Case 3. A case of incipient tuberculosis is being treated by the family doctor in the proper manner, a T. B. nurse visits the patient regularly. She tells the patient there is no use paying the doctor for visits when the patient can go to the T. B. hospital and be treated free. The doctor did not lose this patient or family because the people stuck to him.

Case 4. Doctor makes arrangements to remove tonsils of children of a restaurant owner, it is called off. He is called some months later at night to see one of the children and on examination finds tonsils have been removed. He is told that the father took the children to a well known children's hospital on the North Side where it was done free. These are just a few instances illustrating what the family physician is up against. No doubt we could keep on citing cases like this ad nauseum. Our medical societies are doing valiant work in trying to correct abuses of this kind but it is uphill work. But after hearing happenings as above, one does not wonder so much that the family practitioner is becoming a rare person.

LONGEVITY IN RELATION TO MARRIAGE

The Scottish life tables for 1921, compiled by Dr. J. C. Dunlop and summarized in a recent issue of the Transactions of the Faculty of Actuaries, show, as one might expect, a general increase in the mean length of life of both males and females as compared with the tables of ten years ago. The gain in Scotland between 1911 and 1921 was about three years for males and something over three years for females. These compare with gains of four years and three years respectively in the white population of the ten original Registration States of the United States. These facts are of interest because of the very similar conditions of longevity in the two countries.

Of particular interest are the data which Dr. Dunlop's report brings regarding the differential longevity of married and single persons in Scotland. The bachelor of 25, if he remains single, is nearly five years poorer in his expectation of life than the married man. The spinster, on the contrary, seems to have a slight advantage of three months of additional life, as compared with her married sister. This difference is so small that we might perhaps feel somewhat doubtful regarding its significance. Dunlop, however, has carried the inquiry a little further, to examine how far the observed advantage of the spinster may be attributed to her escape from the risks incidental to

pregnancy and childbirth. When allowance is made for deaths referable to these, it is found that, in Scotland, in the period under discussion, the married woman had an expectation of life of 43.4 years as compared with 42.8 years for the spinster, an advantage of something over half a year. There is a certain plausibility about these figures, which inclines one to regard the difference as probably significant, although it is rather small.

Comparison is made, also, of the expectation of life of spinsters, wives and widows. Widows are at a distinct disadvantage as regards mean length of life. The statistics here bear out what one would naturally expect in view of the economic and other stresses of widowhood.

Dr. Dunlop cautiously abstains from speculating as to the reasons for the figures observed and the seeming advantage of the married, especially among males, over the unmarried. He rests his case with the remark that the shorter life of the bachelor, as compared with his married brother, may be due at least in part to a species of natural selection, since the class of "unmarried persons" will naturally include some whose single estate is directly or indirectly referable to indifferent health or actual disease.—*Statistical Bulletin Metropolitan Life Ins. Co.*

DR. GLAUNER IN TEXAS

Dr. F. E. Glauner, a former member of this society, from Marine, who took a post-graduate course in Berlin and Vienna last summer, is now nicely located in San Antonio, Texas, with offices in the City National Bank Building. He writes:

"One thing that was exceptionally enjoyable was to escape the cold snowy weather, that I had been facing around Marine in the mud for the past several years. The weather while cool at times has been very agreeable, and I believe that we will like it fine unless the summers prove too summery for us, and which we will soon find out."

THE IMPATIENT PATIENT

BY WILLIAM HERSCHELL

Us plays Doctor ever' day,
Which is when Big Bruvver say
He's th' Doctor—I'm th' one
Gotta take his meddisun!
Other kids must stand an' cry,
Bein' skeered I'm goin' to die!

Doc gits Muvver's satchel bag,
Tears a brandage from a rag,
Nen gits bottles from our shelf
For make meddisuns hisself.
Nen he stand like Doctors do,
Lookin' through their specs at you!

Doc he say: "Stick out your tongue—
You've got measles in your lung!
You've got simpsons, too, I find,
Like your eyesight's goin' blind!"
Nen he says my health's so poor
He can't take my tempachoor!

Shakes his head an' says: "Gee whisz!
Wonder who his people is?"
Nen he gives me pills he makes
From tobasco sauce an' cakes;
Says my fever won't reduce
'Less I drink some onion juice.

Doc ist skeers me till I cry
Thinkin' if I'd truly die.
He won't let me doctor him
'Cause his chances would be slim;
He'd take meddisuns, I bet,
He don't very soon forget!

—*Indianapolis News.*

(From *Indianapolis Med. Journal*,
June, 1924).

THE OTHER MAN

BY DOUG MALLOCH

Perhaps he sometimes slipped a bit—
Well, so have you.
Perhaps some things he ought to quit—
Well, so should you.
Perhaps he may have faltered—why
Why, all men do, and so have I.
You must admit, unless you lie,
That so have you.
Perhaps if we would stop and think,
Both I and you,
When painting someone black as ink,
As some folks do,
Perhaps, if we would recollect,
Perfection we would not expect,
But just a man half-way correct,
Like me and you.
I'm just a man who's fairly good,
I'm just like you,
I've done some things I never should
Perhaps like you.
But, thank the Lord, I've sense to see
The rest of men with charity;
They're good enough if good as me—
Say, men like you.

International Journal of Medicine and Surgery.

PIERRE AND TEENOM

BY DAVID H. LEVINGSTON

Teenom have been felt bad in the middle a long long time. So, the next time he pass himself to town he talk wid the doctor. When the doctor have finish his exam' wid Teenom, that Louisiana Cajun wrinkle his face up and say, "Doggone!" Then he hurry up fast home.

"What the doctor tell you to do?" Pierre ax Teenom.

"My goodness!" say Teenom, "that doctor tell me I must do way wid my appendix!"

"You have decide to do that, eh?" Pierre ax.

"Eh, bien Pierre!" say Teenom, almost cry, "if I don't wear no appendix no more how am I going to keep my pants up?"

Original Articles

RICKETS*

L. R. DEBUYS, B. S., M. D.,

From the Department of Pediatrics, School of Medicine,
Tulane University of Louisiana

NEW ORLEANS, LA.

Rickets is an old disease. It has been known since the year 2000 B. C. when an example of the disease occurred in an ape which had been confined in a Theban temple.¹

Seranus of Ephesus² in the second century A. D. in giving a complete account of pediatrics in antiquity observed the frequency of crooked limbs of Roman children. Ebstein³ regarded these as infantile rickets. Epstein⁴ speaks (p. 520) of an infantile skeleton at the end of the first century A. D. (just before Seranus), excavated at Centirupe and now in the Museum at Syracuse showing indubitable signs of infantile rickets.

Glisson⁵ described the disease in 1681 and gave the name Rachitis from the Greek indicating spine and because of its similarity to "Rickets" which was probably a corruption of the Norman-French "Riquets" for deformities. Because of the extent to which the disease was manifested in England, in Glisson's report the disease was called "The English Disease." Rickets has always been a condition to attract the attention of the investigative mind.

Virchow showed that the chief fault in rickets lies in the lack of proper ossification and not to an increased destruction or disintegration of bone as was previously believed. Pommer⁶ was the first to clearly describe the physiology of the osseous system in rickets.

The pathology of rickets has been thoroughly established and it offers the criteria by which an unquestioned diagnosis may be made.

The diagnosis of rickets may be made by its pathological findings, its clinical manifestations, its roentgenographic evidences and its serological tests.

It would be unfortunate if the diagnosis of rickets depended solely upon its pathologic findings and indeed few cases would be so diagnosed as the mortality of rickets *per se* is practically nil. However, the study of rickets with its known pathology has been going on over so long

a period and has been so sufficiently extensive as to have established its clinical picture. With the disease of an established pathology as rickets not only its clinical diagnosis but its roentgenologic and serologic diagnoses have been made possible by confirmation with its pathologic findings in experimental animal investigation.

It is not the purpose at this time to go into an academic dissertation on rickets as you are all undoubtedly familiar with the condition. There are, however, some features of the disease which have been studied which should be of interest and which it is my purpose to refer to today.

In the history of the study of rickets there have occurred periodically times when the interest in the disease has been stimulated. This has been especially so within the past decade during which time there has been more investigational work conducted than possibly in any like period in this history of the disease.

Several theories have been advanced for the causation of rickets, principal among which have been (a) those of infection; (b) those of diet; and (c) those of hygiene. The first of these were especially sponsored by Moussu,⁷ Torane and Forte⁸ and Kock,⁹ the latter of whom said that he could produce rickets experimentally. However, sufficient scientific studies have been conducted to discredit any contention of the infectious character of the disease, thus leaving the two remaining etiological factors namely, diet and hygiene, as furnishing fields for study and investigation.

The names of certain investigators have been associated with these two causative factors of rickets, so that any remarks relative to the etiology of the disease must include some reference to them. Guerin¹⁰ and Bland-Sutton¹¹ appear to be two of the exponents of the dietary cause of rickets.

Guerin¹⁰ fed puppies on meat for four to five months and produced rickets in them, while puppies from the same litter were suckled and they showed no signs of the disease.

Bland-Sutton¹¹ in the Zoological Gardens of London produced rickets in young lions by weaning them early and feeding them on raw meat only and was able to cure them in three months by adding to their diets milk and cod liver oil.

Findlay¹² and Hansemann¹³ are two exponents of the hygienic cause of rickets; the former be-

*Read before the Inter-State Post Graduate Assembly of America, Milwaukee, Wis., Oct. 27-31, 1924.

lieving that "rickets is due to confinement and lack of exercise," and the latter stating that the "cause could be written down as domestication."

Findlay¹⁴ cites the instance of two dogs belonging to a sister and brother. The brother's dog ran about with him and the sister's dog remained confined with her. By the end of the summer the boy's dog was fine and healthy and the girl's dog showed clinical rickets with curving of the legs.

Hansemann¹³ prevailed upon his Japanese students to capture and confine a young wild monkey. After confinement when curvature of the bones took place they were shown to be rachitic, according to Hansemann.

While observations of the exponents of these two etiological schools of rickets are of interest, there are other observers who have recorded similar results and some whose results do not concur with these. It is because of the varied results obtained that the etiology of rickets is still a matter of much interest.

Whatever the etiologic factors in the production of rickets, whether they be purely dietary or purely hygienic, they are closely associated in the investigational and experimental contributions here recorded.

In all investigational and experimental work the several diagnostic means are used as indices for the study. The diagnosis of rickets by its pathology is the most reliable method. But only in experimental animals is this means of diagnosis possible. By a comparison with its pathology in experimental animals the diagnosis of rickets has been made more reliable by serologic and radiologic means. The clinical evidences of the disease do not always concur with the serologic and radiologic findings which is possibly due to the fact that the evidences of rickets secured by these various methods occur at different stages of the disease. The exact order of their occurrence should require further investigation. For example, rickets has been considered as a disease which manifests itself during the second half of the first year. The origin of this belief no doubt is based upon the fact that during the second half of the first year the clinical symptoms ascribed to rickets are noted. Most of the symptoms very likely are the result of a prolonged disturbance. In an article based upon the study of 197 breast fed infants extending over the period of the first year of life it was shown by

DeBuys¹⁵ in the follow-up division of his service of the newly born that the average intensity of the clinical symptoms gradually increased towards the end of the year with the exception of craniotabes which began at four weeks, promptly increased and reached its peak at the 16th week and decreased rapidly to the 28th week after which time its intensity was insignificant. On the other hand, in another study DeBuys and von Meysenbug¹⁶ showed that within the first 12 weeks of life the blood analysis does not show any changes indicative of rickets. From the 12th to the 20th week the blood changes are more pronounced, and after this period there is a gradual return to normal. While these findings coincide with the period of the inception of the individual symptom the intensity of the symptoms continued when the blood returned to its normal calcium and phosphate content.

Calcium and Phosphorus. Calcium and phosphorus are the two chemical elements found to be altered in rickets, so that naturally they have been a source of scientific investigation.

In their study upon the calcium and phosphorus in serum in relation to rickets Howland and Kramer¹⁷ conclude that:

"In non-rachitic infants and young children, the concentration of calcium is from 10 to 11 mg. per 100 cc. of serum.

The concentration of inorganic phosphorus is about 5 mg. per 100 cc. of serum.

The constancy of the concentration of calcium phosphorus and bicarbonate in the serum of normal children undoubtedly determines the constancy of the inorganic composition of normal bone.

During the period of active rickets the calcium concentration may be normal or slightly reduced. The reduction does not seem to depend directly on the rickets. There are reasons for believing that in many instances the reduction is associated with a latent form of tetany.

The inorganic phosphorus of the serum is regularly reduced in active rickets, sometimes to an extreme degree.

During the process of healing, whether occurring spontaneously or as the result of the administration of cod liver oil, the phosphorus content of the serum gradually rises to a normal figure and often somewhat above this. Relapses are accompanied by a fall in the phosphorus concentration of the serum.

All the children under 2½ years of age in whom we have found an inorganic phosphorus content of the serum of 3.0 mg. or less have been suffering from active rickets."

Simultaneously Iversen and Lenstrup¹⁸ studied the acid soluble acid insoluble and total phos-

phorus in the whole blood and plasma of normal and rachitic infants and found a low acid soluble phosphorus in children suffering from rickets compared with the normal.

Pappenheimer, McCann, Zucker, and others¹⁹ showed that:

"Rachitic bone lesions may be produced in rats by a diet containing an excess of calcium but deficient in phosphates.

Similar lesions follow a diet deficient in calcium but containing an excess of phosphate, the endochondral lesions however are less pronounced.

A diet deficient in both calcium and phosphorus induces a typical rickets.

Inorganic salts other than calcium or phosphates seem to be without influence upon the development or prevention of rachitic lesions."

Howland, Kramer, Wang, and Fletcher²⁰ in a study upon the calcium and phosphorus determination in blood plasma in rickets and tetany state:

"In moderate rickets, the phosphorus or calcium or both may be moderately lowered.

In severe rickets the phosphorus is markedly reduced, even in those exclusively breast fed, while the calcium may or may not be lowered."

Shipley, Park, McCollum, Simmonds²¹ in the title of their study ask the question, "Is there more than one kind of rickets?" and in their conclusions make the statement that:

"As the result of our experiments we are led to believe that there are two main kinds of rickets. One is characterized by a normal or nearly normal blood calcium and a low blood phosphorus (low phosphorus rickets); the other by a normal or nearly normal blood phosphorus but a low blood calcium (low calcium rickets)."

Hess and Mazner²² in their investigation upon rickets in relation to inorganic phosphate and calcium in maternal and fetal blood state that:

"The inorganic phosphate of the blood of pregnant women is approximately normal. The calcium is somewhat diminished at term.

The inorganic phosphate of the blood of the mother is almost invariably lower than that of her infant at birth. This holds true, although to a less extent for the calcium.

The inorganic phosphate of the new-born is generally lower than that of the infants one month of age or older. However, even when the percentage was within the rachitic range, rickets was not evident by clinical or roentgenographic examination.

No relationship was found between the percentage of inorganic phosphate in the blood of the new born and the occurrence of rickets during the first year of life."

DeBuys and von Meysenbug¹⁶ in the study of the correlation of the clinical, radiological,

serological evidences of rickets in the breast fed found:

"That the lower the product (calcium X phosphate) the more frequent were the x-ray findings positive and the greater was the degree of clinical evidences of rickets.

The positive radiographic findings, the positive clinical manifestations and the abnormal blood changes ran parallel."

Diet. The foregoing serologic studies have shown that there is a disturbance in the calcium and phosphorus in the blood in this disease. These serologic findings have been confirmed at autopsy in experimental animals. The x-ray evidence of the bone pathology gives a definite picture so that with the x-ray and serologic findings established for rickets as a basis is had for the study of the influencing factors upon rickets in the human being.

The effect of diet upon the prevention, production, and healing of rickets has offered a very extensive field for scientific study. A diet defective in its fat content has long been believed to predispose to rickets. It has been noted that the kind of fat to so influence rickets is animal fat. It has been shown that animal fat contains at least one "accessory food" or vitamin, the fat soluble A. The absence of this vitamin has been held accountable for the development of rickets. God liver oil is rich in this vitamin. It has been shown more recently that there is another vitamin in cod liver oil which is accountable for the antirachitic property of the oil. It is difficult to say how long it has been known that cod liver oil is indicated in rickets. The association of the name of the oil with the name of the disease is historical.

Von Meysenbug²³ found that there is no reduction in the inorganic phosphate of the breast milk on which infants develop rickets.

DeBuys and von Meysenbug²⁴ found the calcium content of breast milk to be greater in the mothers of normal infants as compared with the milk of mothers of rachitic infants. They found the calcium content to diminish as lactation progresses. It was also noted that the calcium content of the milk in the colored race was less than in the white.

"Egg yolk possesses marked antirachitic properties for animals and for infants. It has proved itself of great value in protecting infants from rickets during the season when its incidence is greatest, and with this in view can be recommended as a supplement to the dietary comparable to orange juice in the protec-

tion against infantile scurvy. It has also curative value but less than cod liver oil, and, therefore, according to Hess²⁵ should not be relied on for cure except when cod liver oil is not well borne.

Casparis, Shipley and Kramer²⁶ state that "the addition of one or two eggs a day to the diet will initiate healing, which is usually evident within three weeks after the egg feeding is begun.

"The chemical changes in the blood serum and the roentgenographic changes in the bones are similar to those which follow the administration of cod liver oil.

"The addition of 10 per cent egg yolk to a rickets producing diet will initiate healing of rickets in the rat in six days."

Butter fat has a very feeble influence in protecting animals against the development of ricket like lesions.²⁷

Shipley, Kinney and McCollum²⁸ showed in experimental rats that ether extracts from alfalfa leaves and ether extracts from clover blossoms are antirachitic and the antirachitic vitamin thus obtained caused healing of rickets in rats beginning on the seventh day of administration and was practically complete in 33 days.

The ether extracts of alfalfa are free from calcium and contain only insignificant traces of phosphorus. Ether extracts of cabbage were either negative or doubtful in their antirachitic effect, and the ether extracts of dry spinach, brussels sprouts, cabbage, celery, tomato and sweet potato given in amount equivalent to feeding 250 gms. per kilo of ration to animals with rickets were without effect on the rachitic process in the bones.

McCollum, Simmonds, Shipley, and Park²⁹ in their experiment upon the effect of starvation on the healing of rickets, furnish the first anatomical proof of the beneficial effect of starvation on the animal body. They believe that:

"Rickets has certain of the characteristics of a deficiency disease because certain substances contained in cod liver oil and elsewhere corrects an anatomical condition which develops when the calcium and phosphorus in the diet are present in wrong proportions. Yet rickets has a feature entirely distinct from beri beri, scurvy, and xerophthalmia. The relation between two inorganic elements determines the extent of the animal's need for the organic factor which cod liver oil furnishes. No such relationship between a vitamin and any other food substance has been clearly demonstrated in any other condition."

They²⁹ have shown that in rats with rickets a period of fasting induces a cessation of the activity of the disease and initiates healing with recalcification of the proliferative cartilage of the bones.

Howland and Kramer as quoted by Cavins³⁰ have shown this calcification to be accompanied by changes in the inorganic salts of the blood which changes are concerned only with the calcium and inorganic phosphates. These workers have further shown that there is a close relationship between the deposition of calcium phosphate in bone and the product of the concentration of the serum calcium (in mg. per 100 c.c.) and the concentration of the inorganic phosphorus expressed in the same terms. Their conclusion is that

"when the product is below 30, rickets is to be expected, between 30 and 40 it is possible. When the product is above 40 either healing is taking place or rickets is entirely absent."

McCollum, Simmonds, Shipley and Park²⁷ believe that with diets which are deficient in calcium but which contain a sufficient supply of fat soluble A and have an approximately normal content of phosphorus rats develop rickets fundamentally resembling human rickets. The administration of cod liver oil when the condition is well advanced is followed by healing of the lesions with the formation of an osteoporotic bone.

An influencing factor which should not be lost sight of is the effect of the diet during the pre-experimental period, the first 4 weeks of life.³¹

Howland and Park³² and others have shown the radiographic evidences of rickets in the bones and have demonstrated the beneficial effect of cod liver oil by radiograms following the administration of the oil. These changes can be noted at the end of the third or fourth week.

It was generally believed that the fat soluble A contained in the cod liver oil was the causative factor in the cure of rickets. The experiments of Hess, McCann and Pappenheimer³³ in this connection are enlightening:

"Young rats receiving a diet complete except for a lack of the fat soluble A vitamin invariably failed to grow and generally developed keratitis. The keratitis developed less frequently when the ration included orange juice. If this diet is continued for a period of months the animals died either of inanition or more often of some intercurrent infection. The skeletons of such rats show no gross changes whatsoever. Microscopic examination of the bones of 22 rats on a ration of this character presented definite signs of a lack of active osteogenesis but in no instance lesions resembling rickets. In view of these results and their conformity with our previous experience in regard to infantile rickets we are of the opinion that this vitamin

cannot be regarded as the antirachitic vitamin and that if the diet is otherwise adequate its deficiency does not bring about rickets."

McCullum, Simmonds, Becker³⁴ state:

"Although there is no longer any room to doubt the efficacy of cod liver oil in curing rickets the nature of the active principles in the oil is still unknown. It has been stated that the fat soluble A is responsible for the beneficial effect from its administration in this disease. We have, however, published certain evidence which lead us to believe that the protection against rickets which cod liver oil affords is not due to fat soluble A.

Hopkins has shown that this vitamin is readily destroyed by oxidation. Following his lead McCullum and his coworkers³⁴ "oxidized cod liver oil for from 12 to 20 hours at 100 degrees C by blowing air through it. Oil which was treated in this way did not cure xerophthalmia, even though its administration was begun at the onset of the disease when edema of the eyelids was first noticeable. On the other hand, it was just as effective in curing rickets in rats as the untreated oil. The bones of rachitic animals which were given daily a curative dose of oxidized oil to the amount of 2 per cent of the weight of the ration (average daily consumption of cod liver oil about 70 mgs.) for 11 days showed quite as advanced evidences of healing as those shown by animals which had received the same amount of unoxidized oil for the same length of time.

The antirachitic effect of cod liver oil is not due, therefore, to its content of fat soluble A but to some other factor which the oil contains.

The existence of this substance which exerts its effects in so remarkable a manner on the growing bones is now as firmly established as is the instance of any of the three hitherto recognized vitamins. From its mode of action and the very small amounts of it which are required to exert its directive influence on metabolism it must we believe be classed with this group of essential nutritive principles."

They carried on the investigation further³⁵ and concluded with the statement:

"The evidence set forth in this paper demonstrates that the power of certain fats to initiate the healing of rickets depends on the presence in them of a substance which is distinct from fat soluble A. These experiments clearly demonstrate the existence of a fourth vitamin whose specific property as far as we can tell at present is to regulate the metabolism of the bones."

Light. Hess and Unger³⁶ have shown that rickets is encountered occasionally when every kind of food is given without exception: On a dietary containing a large quota of milk, therefore rich in fat; on a diet low in fat and the fat soluble vitamin; on raw or pasteurized milk; on a diet of fluid milk, dried milk, condensed milk and human milk. He has found it to occur in

one-half of the breast fed infants of the poor. while DeBuys¹⁵ has noted the disease to occur to an appalling degree in those infants exclusively breast fed. It would seem that since the disease occurs with such frequency on a diet supposed to be ideal that either one of the two reasons or both must be given, namely, that breast milk is deficient in the antirachitic factor or factors contained in food or that something additional is necessary to exert a favorable protective influence.

Rickets is notably frequent in parts of the world where the amount of sunlight is relatively little as compared with other parts where the amount of sunlight is plentiful. Indeed, it was this observation that led Hutchison³⁷ to make his observation in India, selecting India because of its excessive sunshine as compared with London's. To quote:

"In consequence of the purdah system practiced by the wealthy Hindus and Mohammedans the children of the rich were much confined in airless and sunless rooms not only during infancy but also in the case of girls about puberty when they went to reside in their future husband's house. The poor on the other hand lived in tents and huts and led an open air life. The various articles entering into the diets of the two classes were the same, though they were quantitatively differently distributed. Hutchison found early rickets during infancy and late rickets in the young girl wives prevalent among the rich and very scarce among the poor."

His diagnoses of rickets were substantiated by his x-ray findings. It is interesting to record that Hutchison³⁷ noted great improvement, in fact, rapid recovery in many cases by simply putting the patients in the sun and fresh air. This was noted without any change in the diet and without the administration of drugs.

Huldschinsky³⁸ (quoted by Meyer³⁹ in 1920) was the first to institute systematic attempts at the treatment of rickets with artificial ultra violet light (the mercury vapor lamp according to the Hanau system) and the summary of his results with ultra violet irradiations are as follows:

"The therapeutic effect of quartz light irradiation is invariably apparent in all forms of rickets.

Recovery results more promptly than with any of the methods employed heretofore.

The effects of irradiation are lasting and the regenerative process is active for at least two months after interruption of treatment.

The duration of treatment embraces (a) from 2 to 4 weeks in infants, (b) from 1 to 2 months in children aged one year, (c) from 2 to 6 months in chil-

dren aged 2 to 4 years, (d) up to 9 months in older children. He demonstrates roentgenographically that calcification of the bone parallels the clinical improvement."

Kramer, Caspiris, and Howland⁴⁰ showed the effect of ultra violet radiation upon the calcium and inorganic phosphorus concentration of serum in rickets. To quote:

"Five children showing clinical evidences of rickets confirmed by roentgenographic examination of the bones, were treated by systematic exposures to the rays from the mercury vapor quartz lamp. This was followed in every instance by healing of the rachitic process of the bones. The inorganic phosphorus concentration of the serum of these children was low (from 2.7 to 3.2 mg.) before the treatment was begun and gradually increased to a maximum of 6 mg. with the appearance of calcium deposition in the bones. So far as could be judged by x-ray, healing of the bones following radiation occurred at about the same time as it does after the administration of cod liver oil. The changes in the phosphorus concentration of the serum were identical with those observed after cod liver oil treatment. The pigmented skin of the negro child did not interfere with the action of the light rays. The colored children required no more intensive treatment to bring about healing than did the white children."

Hess and Unger⁴³ in their interpretation of the seasonal variation of rickets state:

"Young rats on a diet low in phosphorus can be protected from rickets by irradiations with sunlight for about 15 minutes daily. In the winter months, however, this degree of light was found insufficient. The effective rays of the sun, in the intensities studied, did not penetrate window glass. They manifested some protective value after reflection from a smooth white surface.

Irradiation of a few minutes with the rays of the mercury vapor lamp suffices to protect rats against rickets. This is true likewise of the rays from the carbon arc lamp. A standard protective dose of radiation can be formulated for rats on a standard diet.

Light is able to prevent the occurrence of rickets in rats fed a rickets producing diet characterized either by a low phosphorus and high calcium content, or a high phosphorus and low calcium content.

Moderate variations in temperature do not alter the effective action of light rays. Pigmentation of the skin markedly lessens their effect, as demonstrated by the failure of a standard dose to protect black rats."

Schultzer and Sonne⁴² present a preliminary report on their success in warding off rickets in rats by exposing them to ultraviolet ray:

"All the rats developed rickets on the McCollum scurvy diet 3,143. The rickets was manifested in three weeks, and was pronounced in four when the rats had been kept in the dark, but there were not signs of rickets in the rats that had been exposed daily for

fifteen minutes to the mercury vapor lamp. The phosphorus content of the serum was normal. Exposures limited to 5 minutes protected to some extent, but not completely. They noted further that the protection afforded by the light was less effectual in black than in lighter colored rats. The effective ultraviolet rays seemed to be those with wave lengths between 400 and 280 millimicrons. Even exposure for one minute daily had some influence.

Sunlight and carbon arc light have a decided action, but the mercury vapor lamp is more potent in rickets."

Hess and Unger⁴¹ in another study of the seasonal variation of rickets further show the beneficial effect of light. Their conclusions are:

"Milk from pasture fed cows (summer milk) failed to prevent the development or to decrease the incidence of rickets during the winter. On the other hand treatment with ultraviolet rays or with sunlight brought about calcification of the bones during the winter as demonstrated by means of the roentgen ray. These contrasting results lead to the conclusion that hygienic factors, especially sunlight, and not dietetic factors, play the dominant role in the marked seasonal variation of the disorder."

Powers, Park, Shipley, McCollum and Simmonds⁴⁴ in their experiment to determine the preventive effect of sunlight conclude:

"The beneficial effects of the sun's rays were not limited to the skeleton since the condition of the animals underwent a general improvement under the influence of the treatment with sunlight. The effect of the sunlight on the skeleton was a manifestation of its favorable effect only on a single tissue.

The exposure to the sun rays however did not entirely compensate for the defects in the diet. The animals remained undersized, the bones though completely calcified remained thin. Though the sunlight did not alter the defects in the diet it permitted the animals to thrive to a limited extent in the presence of them.

It is necessary to conclude, therefore, that the sunlight in some way raises the efficiency of the body cells. It enables the organism to put into operation regulatory mechanism which otherwise would have been inoperative or ineffectual.

The effects of sunlight and of cod liver oil on the growth and calcification of the skeleton and on the animal as a whole seem to be similar if not identical."

These same observers⁴⁵ conducted experiments to determine the protective effect of the mercury vapor quartz lamp and were able to prevent the development of rickets in rats. They concluded as follows:

"The beneficial effects of the radiations from the mercury vapor quartz lamp were not limited to the skeleton since the condition of the rayed animals underwent a general improvement.

The effect of the radiations of the mercury vapor quartz lamp on the growth and calcification of the skeleton of the rat and on the animal as a whole seemed to be similar to if not identical with those brought about by direct sunlight and by cod liver oil."

Shipley, Park and McCollum²¹ were able to produce a pathological condition corresponding in all fundamental respects to rickets in human beings in two ways when rats were deprived of certain active light rays: 1. By diminishing the phosphorus and supplying the calcium in optimal quantity or in excess, or 2, by reducing the calcium and maintaining the phosphorus at a concentration somewhere near the optimum.

Hess and Unger⁴⁶ were able to obtain results by direct action of the sun's rays similar to those from the ultra violet ray.

"In their experience there was marked improvement in the rickets as evidenced by the calcification of the epiphyses noted by x-ray. The alteration resembled that which follows the administration of cod liver oil. The children's general condition was also benefited."

The beneficial influence of sunlight in the prevention of rickets was shown in rats fed upon a diet adequate in calcium, but low in phosphorus by Hess, Unger and Pappenheimer.⁴⁷ To quote:

"Rachitic lesions which develop regularly in rats upon a diet adequate in calcium but low in phosphorus may be prevented by short exposures to direct sunlight.

This protection is equivalent to the addition of at least 75 mg. of phosphorus to the diet in the form of basic potassium phosphate."

Gutman and Hess⁴⁸ showed the curative effect of sunlight which was accompanied by an increase of inorganic phosphate in the blood. They concluded:

"It is evident that sunlight not only brings about a clinical cure of the characteristic lesions, but also brings about an increase in the inorganic phosphate of the blood similar to that noted when the cure is accompanied by means of the specific cod liver oil. This observation is of interest both as additional testimony of the curative value of sunlight in this disorder, and as evidence that the curative process occasioned by those divergent therapeutic agents will probably be found to be fundamentally the same. These results establish a chemical basis for the use of heliotherapy in rickets. Furthermore, they furnish the first definite evidence of metabolic changes in the animal body brought about by the solar rays."

The experience of Hess and Unger⁴⁸ with the carbon arc light in the prevention and cure of rickets is interesting, as they add another therapeutic agent of value. They state:

"In this experiment we used the white flame carbon arc lamp because its rays more closely approach the

sun's spectrum, and they were rich in luminous rays. The mercury vapor quartz lamp emits rays rich in ultra violet. Much of the ultra violet rays are of wave lengths considerably shorter than those of sunlight. The carbon arc light used was similar to those employed in taking motion pictures. The children did not experience any tanning. Hess believes that pigmentation is a non-essential factor in heliotherapy in rickets and argues against Rollier's theory that the beneficial action of sunlight is due to and in accordance with the degree of pigmentation which is produced. There were no superficial burns in this experiment. Hess concludes that the carbon arc light has been found in the laboratory as well as in the clinic to be a very effective therapeutic agent in preventing and curing rickets. It has the advantage of being comparatively inexpensive, its rays are non-irritating to the skin so that it can be used for hours with perfect safety."

The experiments of Eckstein⁴⁹ made on 43 rats proved that

"those animals which had been treated by irradiation from an electric arc light failed to develop rachitis in spite of preliminary deprivation of vitamin A, phosphorus and fat content of their food. The non-irradiated control animals developed rachitic bone changes."

Finally, with regard to the various ray experiments, Hess, Unger and Steiner⁵⁰ have shown that the roentgen rays neither prevent nor produce rickets in experimental animals.

Exercise. With regard to exercise in rickets no experimental data is available to warrant any conclusions. Most clinicians advise against too early exercise in rickets, i. e., sitting, standing and walking. In fact, this advice was given by Seranus² in the second century. On the other hand, Findlay¹⁴ advocates the use of electricity and massage, as they tend to cause the rachitism to walk earlier; and Marfan⁵¹ advises that the child should not be prevented from standing for a short time and walking a few steps at the beginning of progress toward recovery. It would seem to be more judicious, however, in view of observations made upon the colored race, to advise against this plan. These colored children are thrown upon their own resources earlier and consequently sit, stand, and walk at a younger age than do the white children. These colored children also have more rickets and the deformities of rickets in them are decidedly more marked. It would seem, therefore, that until the rachitic process is healed exercise, either active or passive, should be advised against. Further in cases of deformity, attempts should be made to correct them while treatment is in

progress, so that the deformities may be overcome as the ossification of the bones, the strengthening of the musculature, and general improvement of the individual progresses.

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TRAUMATIC RUPTURE OF THORACIC AORTA WITH REVIEW OF FIFTY-FIVE ABDOMINAL INJURIES*

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I wish to report the history and autopsy findings of a man, aged 49, married, two children under 16. While working at a revolving rip-saw (2,800 revolutions per minute) a block of wood was thrown back against his sternum. The blow did not produce laceration of skin, and little, if any discoloration. Upon first examination made in my office Aug. 15, 1924, I found temperature 98.2, pulse 85, respirations 22, blood pressure 99 systolic—60 diastolic. Excursion of lungs normal. A few coarse rales in right upper lobe. Left lung clear. No areas of dullness in either lung. Expansion $35\frac{1}{4}$, contraction 33. Apex of heart in left fifth interspace mammillary line. Right border does not extend beyond the right border of the sternum. Tones clear. No murmurs. No intermissions or extra systoles. Regular rhythm. Pulse soft. Urine, dark amber color; specific gravity 1030; reaction acid; no albumin; no sugar. X-ray of chest did not reveal fracture.

Aside from the tenderness over the sternum

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and slight embarrassment of respiratory movements, the patient did not complain. There was no cough. I advised him of the tremendous force the blow carried, and directed him to go to the hospital for a few days' observation. This he refused to do, stating he expected to resume work in a few days. He returned to my office Aug. 17, stating he had a great deal of pain in his chest, directly under the sternum. His color was not so good. Temperature 99; pulse 90; respirations 24. Excursion of lungs was the same as at first examination. He was given a mild laxative, and directed to remain quiet, in bed, with ice bag applied to the sternum. He came to my office again on Aug. 19 feeling better. No further chest symptoms. Stated he thought he was well enough to resume work. I directed him to remain quiet and return on Aug. 22. Another examination made of his chest on Aug. 23 did not reveal any abnormal changes. In view of the fact that he had regained his strength, I stated he might resume light work on the following Monday, Aug. 25, 1924. Soon after he arose on that day, he stated to his family that he did not feel so well. In a few minutes he was dead—before medical aid could reach him.

Post Mortem Examination:

On inspection of body we found an extensive area of no excessive ecchymosis over the sternal region extending from left mammillary line to right mammillary line and down to end of sternum.

On opening the skin we found some extravasation of blood between 2nd and 3rd, and 3rd and 4th ribs on right side, and a small clot near the median line. On opening the thorax we found considerable extravasation in anterior mediastinum. The lungs were about normal. On opening the pericardium we found it completely filled with clotted blood (about 500 cc.). Tracing this to its source we found a rupture of the lining of the aorta just as it springs from the left ventricle of the heart, at which point the blood had finally worked its way through.

In my opinion death was due to hemorrhage into the pericardium following accidental injury.

Signed "J. H. Goltra."

From a careful search of the literature with respect to traumatic dissecting rupture of the thoracic aorta, I have found 75 cases reported since 1895. Twenty-six of these reports show traumatic rupture with hemorrhage into the pericardium, as was noted in the post mortem findings of our patient. Two cases were reported

of incomplete thoracic rupture of aorta due to trauma.

P. Rowland Kemp¹ reports a traumatic rupture of thoracic aorta in a male aged 46, admitted to casualty department dead. A history was given of having been struck on the head and chest by a portion of a stone, which had been separated from a flywheel, while revolving at full speed, in a motor works. He had a large abrasion over the sternum, deep bruises over right malar bone, and an incised wound of the chin. Post mortem examination revealed an extravasation of blood into the subcutaneous tissues and under the pectoralis major in the area of the abrasion. The sternum was obliquely fractured from above downward and backward into the line of 3rd and 4th costal cartilages. The lungs were deeply congested. The pericardium was greatly distended with blood which had escaped from a transverse tear in the aorta just beyond the line of the aortic valve. The exuded serum was under considerable pressure. Skull was entirely negative.

Traumatic rupture of healthy thoracic aorta without external signs of the cause of death is reported by G. G. Copeland.² A laborer, 40 years old, was struck by a large mass of falling earth which gave him a glancing blow on the back, knocking him down. A few seconds later he was picked up dead, and was seen by a medical man who could find no external evidence of the cause of death. Post mortem findings were as follows: 310 cc. free blood in peritoneal cavity; left pleural cavity contained 380 cc. blood; descending aorta ruptured straight across—no evidence of disease. What caused the rupture he was unable to say, though the idea of a force acting like a contrecoup seemed tenable.

In connection with this report I wish to review 55 "kickback" accidents, due to a piece of wood thrown back from a revolving rip-saw or planer producing trauma to the abdomen. These cases have come under my personal attention for treatment during the past twelve years.

The average revolving rip-saw is run at about 2,800 revolutions a minute, while the planer is faster—approximately 3,400 revolutions a minute. The force of the blow is sufficient to knock the workman back from four to seven feet. Profound shock, nausea, weak pulse, cold perspiration follow. After a short while the patient may resume work for a time.

If the employer is prudent, having had experience with such accidents, he will insist upon the injured workman going to the hospital at once. I have known these men to stop work, go home and await symptoms. Some of them go through the night, others call a doctor earlier. Some of these patients have finished a day's work, only to find themselves in a state of collapse by evening. Others apparently have little pain. All of them should be regarded as serious injuries until such time as it is known definitely that there is little if any damage to internal organs. It is far better for the physician in charge of one of these accidents to understand that he is dealing with a surgical case from the beginning.

Sternberg of Vienna states that woodworkers working with revolving saws (2,000 to 3,000 revolutions per minute) are very prone to injuries caused by the wood being thrown back by the saw. The following statistics were gathered from Austrian furniture factories. Of 519 accidents caused by planing machines 221 were due to "Zurerckschlagen" or "kickback." The remaining injuries were of the fingers, etc. Of 135 accidents caused by trimming machines 85 were due to the "throwback." Of 514 caused by circular saws 204 were due to the same mechanism.

Monro³ states that a hollow viscus filled with food is more apt to rupture than one which is empty. The majority of ruptures occur in the upper and lower portions of the small intestine, i. e., the less movable portions. Perforations may be single or multiple.

KICKBACK ACCIDENTS AND TRAUMA TO ABDOMEN

Total number of author's patients.....	55
Number operated on	18
Number operated upon the day of injury.....	13
Of those operated upon the day of injury (recovered)....	12
Or a mortality of.....	7.7
Number operated upon 2nd, 4th and 7th day after injury	5
Of those operated upon 2nd, 4th and 7th day after injury (number recovered)	1
Or a mortality of.....	80%
Total number of patients not operated on.....	37
Ordered to report because of nature and type of injury to abdomen	23
Persistently refusing to submit to early operation.....	13
Five of the thirteen died—or a mortality of.....	39%

One patient died on way to hospital.

The one patient who had been operated on the day of injury had a ruptured pancreas. Autopsy findings of fat necrosis.

Five of the thirteen who persistently refused exploratory operation—autopsy findings were:

1. Jejunum traumatized so that two openings size of pencil were found in the upper portion.
2. Large irregular tear middle portion of ileum.
3. Trauma to the ileum so that adynamic ileus produced death.
4. Ruptured urinary bladder.
5. Opening in the lower portion of ileum large enough to admit little finger.

Massie⁴ reviews thirty-four cases of intestinal rupture without penetration of abdominal wall. He found stomach, duodenum and colon free from injury in this series of cases, while the jejunum and ileum suffered the majority of the lesions. Most of the lesions were partial ruptures, not producing a complete division of the bowel.

Of my 18 cases operated on I found: nine with lacerations or bursting holes in the ileum; three with holes in the jejunum; one rupture of the urinary bladder; one rupture of pancreas: one adynamic ileus, or paresis of the bowel; two lacerations of capsule of the liver; one hemorrhage of the mesentery with trauma to the ileum.

External evidence of trauma and history of blow to abdomen are not safe guides. Recently I had a patient with a good deal of discoloration of the skin and marked rigidity. Pulse 88. Considerable evidence of shock. Advised immediate exploration of abdomen. Patient refused and left the hospital against orders. I followed his progress for a few days until he resumed work. I understand he has worked ever since with little, if any, disturbance resulting from the blow. One week before this accident a patient came under my care who sustained a kickback with little, if any, evidence of trauma, no rigidity of abdominal muscles and practically no pain. I waited thirty-six hours before advising operation. When I opened the abdomen I found a small hole in the lower portion of the ileum with localized peritonitis. The opening was repaired and drainage established. Patient went along nicely for a few days when he died of general peritonitis.

John T. Bottomley⁵ writing on injuries to jejunum and ileum states that unfortunately the early symptoms of a severe injury may differ in no essential way from those of an unimportant injury, and we may thus be lulled into a dangerous feeling of security. He analyzed the cause, early symptoms and signs of twenty cases of

proven severe intestinal injury caused by blunt force and of an equal number of cases of undoubted simple abdominal contusions from nearly identical causes. Pain, shock, tenderness, muscular spasm, dullness, vomiting, distention and external signs of violence—the symptoms common to both classes—were carefully studied and several interesting deductions made. In the first place, apparently identical causes may produce a comparatively insignificant or a very severe injury. It is equally difficult to estimate the amount of force exerted by the acting agent and the degree of resistance or lack of resistance offered by the subject. There is no symptom or combination of symptoms that distinguishes the serious from the unimportant injury. There seems to be no certain pre-operative means of differentiating between a simple abdominal contusion and one complicated by severe intestinal injury.

I have found the best guide to what is going on within the abdomen is the pulse. It should be carefully taken a full minute every half hour. A pulse increased to 90 or 95 within a few hours after an accident means trouble, especially if it remains around 95. This increase alone of the pulse is sufficient to advise exploratory operation. On the other hand, if the pulse is 48 or 55, one is justified in advising immediate exploration of the abdomen. Two of my patients operated on had a pulse around 50—one a rent in the capsule of the liver with considerable shock, the other intestinal paresis of three feet of the lower portion of the ileum.

A full intestine is much more liable to rupture than when the bowel is nearly empty. Ascertain, if possible, when the patient had his last meal. If the accident occurs within 15 minutes or an half hour after a meal, the intestine is more liable to burst. When the patient is caught suddenly by the blow and the muscles are not firmly contracted, there is little resistance, with practically no defense between the viscera and the force.

Muscular rigidity is regarded by some as pathogenomonic. W. J. Mayo believes this is sufficient to warrant exploration. I recall one patient who was so rigid over entire abdomen that I advised operation at once. He wished to know if I could assure him of recovery if operation was done at once. I stated his chance was 99 per cent good. This did not satisfy, he

wanted 100 per cent sure, or no operation. This patient left the hospital that night and resumed work two days later. He had rigidity with a painful abdomen for ten days following. I am inclined to the belief that a slightly distended abdomen is a better sign than so much rigidity of the muscles.

Hemorrhage often adds to the confusion. Usually if the hemorrhage is at all marked, the appearance of the patient together with the pulse will spell alarm and cause surgical interference.

It is well to have these patients void urine so that bladder injury can be ruled out of probable trauma. From my total of 55 cases only two sustained bladder injuries; one—a complete irregular tear 2 ccm. long on the anterior surface; the other was traumatized so that it was questionable at the time of operation if the bladder wall would hold. By the use of a retention catheter—not allowing the bladder to become distended for five days—the patient recovered with only cystitis as a complication.

In attempting to make a differential diagnosis one can only speculate. As a matter of fact it is impossible to make a correct diagnosis without exploratory laparotomy. From the 18 patients operated on I might say five or six of them were explored with a timidity that it might not have been necessary to operate.

A short time ago I opened an abdomen wherein the symptoms were mild, although the patient gave a clear history of a forceful blow to the right of the umbilicus. I had difficulty convincing him operation was necessary. In fact, the patient refused. It was necessary for me to convince the family physician before the patient would submit. I found a rent in the middle portion of the ileum large enough to admit the tip of the little finger. This patient made an uneventful recovery.

The fact that a few unnecessary operations may be done is no argument against the procedure. Referring to the chart of 55 cases reported and finding five deaths out of thirteen who persistently refused operation and four deaths of five operated on late, as against one death in 13 when operation was performed early indicates the necessity of early exploratory operation in most all of these cases. These lives would not have been sacrificed to their needy families if they had submitted to operation.

Prognosis. From the experience I have had with 55 patients of different types of trauma, I have concluded early exploratory operation is advisable in 90 per cent of all cases. Watchful waiting with a clear history of "kickback" or deep trauma to soft parts of abdomen means death.

Lund, Nichols and Bottomley⁶ report six cases in which operation was done with four recoveries, the deaths occurring in cases in which operation was done after many hours had elapsed.

Siegel⁷ has collected 376 cases of rupture of intestine which have been submitted to operation. The mortality was 51.6 per cent. Those cases operated upon in the first four hours showed a mortality of 15.2 per cent; within five to eight hours, 44.4 per cent; within nine to twelve hours, 63.6 per cent; after twelve hours, 70 per cent. One might state the prognosis is favorable if operation can be done during first five to seven hours following injury. Operation after twelve hours, if the trauma has been severe, gives the patient about a 30 per cent chance of recovery.

Treatment. There is no medical treatment for these patients, except application of ice-bag until exploratory operation can be done. Morphin should not be given, because, if the patient is hesitating about operation, it will sometimes give the desired relief and the patient will decide to wait until more serious symptoms develop before consenting to operation. Then it may be too late.

It usually requires two or three hours to get the patient into the hospital for the surgeon to examine and advise. Then it further requires several hours more for the religious advisor and the operating room preparation, so that five to seven hours time elapses before surgical interference occurs. Every hour wasted after five means a more serious time for the patient.

Once the abdomen is opened, it has been my experience to do a simple suture of silk or linen to the rent in the intestine and close the abdomen without drainage, in as short a time as is possible. What is to be done by the surgeon must be decided upon in each individual case. I have not had to do resection in any of these cases reported. If escape of fecal contents is profuse, thorough flushing of the peritoneal

cavity might be advisable and tube drainage may be necessary.

Some of these patients are restless following operation, especially if gas distention occurs. Morphin is indicated to lessen peristalsis so that the traumatized intestine has opportunity to heal. If the patient has nothing but warm water by mouth and glucose solution or warm water (drop method) per rectum for a few days, little disturbance follows.

One of my patients would not resume work when he had recovered. He had suffered a rent in the lower portion of the ileum. I repaired it a few hours following injury. He made an uneventful recovery. A physician later made a diagnosis of traumatic neurosis following shock from accident and operation. The patient made the rounds until he was advised he had a duodenal ulcer. With this diagnosis the Industrial Commission recommended further surgical attention. The abdomen was explored. We did not find duodenal ulcer nor any adhesions. The stomach had a normal appearance. The repair of the rent in the lower portion of the ileum was in good condition. Lumen of intestine had not been changed by the repair. There was nothing abnormal to be found within the abdomen. Patient recovered and advised of our findings. The exploration had a splendid psychic effect. After eight weeks he resumed work and has worked steadily ever since. If these patients have an early adjustment of whatever compensation is due them, I have found it has a tendency to promote recovery with less subjective symptoms.

CONCLUSIONS

1. Trauma to the chest or abdomen requires careful attention from the time of accident.
2. These patients should be in the hospital under the care of a surgeon. They are not medical cases.
3. Exploration of abdomen is essential for correct diagnosis in more than 90 per cent.
4. Operation five or seven hours following trauma is a safe procedure. After 10 or 12 hours it is unfavorable—especially if pulse is above 90.

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DISCUSSION

Dr. William M. Harsha: I have been very much interested in Dr. Kuhn's paper and in his work, of which I have seen a good deal in the past seven years, through his courtesy. The President said we were going down to the abdomen after we had the papers on the nose, throat and chest, but after listening to Dr. Kuhn it seems to me he has gone from the upper part of the chest clear down to the bladder.

In this industrial world more versatility is required than in almost any other specialty. The industrial surgeons have done great credit to themselves and they deserve to have the excellent association which is devoted to their work. Dr. Kuhn and Doctors Mock, Forrester, Magnuson, Fisk, McNeally and others have done credit to the profession by the work they have done. Most of us surgeons can refer something in a special line to the specialists, because there are many surgical specialists now. Brain surgery is now considered a specialty, surgery of the neck more or less so, and there is an Association of Thoracic Surgeons. Then we have the gynecologists and abdominal surgeons, the genitourinary specialists, and the orthopedic surgeons, who take care of the bones from top to toe, but the industrial surgeon takes care of all of these things. He has to do brain surgery, abdominal surgery, thoracic surgery, orthopedic work and all that sort of thing. Not only that, but he must also be an internist, for if he has an amputation to perform he has to see if the patient has any condition which will interfere with operation and healing; and I think there is no branch of surgery that requires more versatility and more general knowledge than this particular branch. I wish to congratulate the Doctor on the way he has handled his cases. Such work requires great self-reliance.

I wish to ask him in passing how many of the cases of rupture of the thoracic aorta had fracture of bones of the chest. His case, as I understand it, did not have fracture of the bony part of the chest.

The mechanism of these internal injuries, as he said, is a matter of speculation. Some are done by pressure of gases or fluid, some intestinal cases by pressure where the intestine is pushed forcibly against the spine, and some are done in various ways. I have seen some of Dr. Kuhn's cases, through his courtesy. One of the cases of rupture of the bladder I saw. That patient had the usual symptoms of severe pain,

some shock, a frequent desire to urinate but was unable to void. On the passage of a catheter nothing was withdrawn but a small amount of bloody urine. Both of these cases recovered, as he reported. Rupture of the bladder is not a common injury from trauma not associated with fracture of the pelvis. As Dr. Kuhn said, when the intestines are distended there is more danger of rupture and the same is true of the bladder for reasons that are obvious. The case I saw had no crushing of the pelvic bones and was apparently a pressure injury on a full bladder. One case which I saw with him was that of a man who came here from an outside city, who had a history of a kick-back some months before. He had lost a great deal of weight and was unable to eat. He had roentgenograms made by three different roentgenologists, all of whom made a diagnosis of cancer of the stomach. The symptoms were too marked and there were too many symptoms, it seemed to me, to fit with simple cancer of the stomach. The antrum and pyloric end of the stomach, as shown by the roentgenogram, was contracted for three inches. He could hardly walk, was bent forward, and had symptoms which the ordinary cancer of the stomach does not present. We advised exploration and found that as the result of the trauma suffered several months before he had perigastric adhesions which compressed the antrum and lower part of the stomach. He also had a thickening of the wall of the stomach, particularly the posterior wall. After loosening these adhesions and putting the stomach in a more normal position the man made a good recovery. The operation was in October, two years ago. He went to work in December and has been at work ever since and seems to be completely well. From the history I could not be sure that he did not have cancer but the postoperative history shows that the trouble was all due to traumatism.

In regard to Dr. Kuhn's conclusion to operate on these cases, I think he is right. This is not entirely new. American surgeons fifteen or more years ago regarded all these accidents "as serious unless proven innocent." The English surgeons took a different view, advised an expectant plan, and the results were very different in the mortality. The mortality of exploratory operation is only a fraction of 1 per cent. and 90 per cent. of these severe abdominal contusions should have early operations. All the figures I have seen show this.

Regarding the time of operation, those of us who have operated many times for perforated duodenal ulcer know that the first day is the time of safety, and the earlier in the first day the better for the patient. The same is true of traumatic ruptures.

Another feature Dr. Kuhn mentioned is the malingerer kind of case. I think it is up to the industrial surgeons to discover some kind of serum that will detect a malingerer! At present the only way we have is to employ a squad of detectives. That is the hardest kind of case to me. We know the best of men are sometimes deceived by these malingerers. Doctors are trying all the time to get at the truth

about these cases, but occasionally a man who is hurt, and employs a certain type of lawyer, attempts to show up everything but the truth and it seems to me a very difficult thing to determine. I have noticed one thing, however, and that is that a malingerer who contends that he is not going to get well until a certain time, or until a certain operation is done, when offered operation, knowing that he does not need it, will sometimes show his hand. Fifteen years ago a surgeon reported 250 cases of railway injuries before one of our societies, in which there were both injuries and neuroses. The records of those cases were kept, and it was surprising how rapidly some of them recovered after settlement of their claims.

Dr. Daniel A. Orth: Dr. Kuhn's vast industrial experience and his keen observation have enabled him to collect an exceptionally large number of cases of non-penetrating abdominal injuries which he has so aptly designated as "kick-back" injuries.

In contrast to Dr. Kuhn's series of cases in which the small intestine was by far the most frequently affected viscus, Koerte found that the solid viscera, i. e., liver, spleen, kidneys and pancreas, are more apt to be involved in these injuries.

Monro states that a hollow viscus is more likely to rupture when filled with food than when empty. Dr. Kuhn made the same observation in his cases of intestinal perforation, fifteen or twenty minutes after a meal. This is probably not due to the presence of the recently ingested food within the intestine, but may be due to the confining of the gas by the distended stomach at one end and the force of the blow at the other.

Dr. Kuhn also mentioned, as an early diagnostic sign, the abdominal distention. Free gas in the peritoneal cavity is a very important sign. When rupture occurs the gas rises to the highest point. Tympany is observed in the epigastric region and lateral liver dullness is present with the patient in the dorsal position. If free gas is present the lateral liver dullness disappears when the patient is turned on the left side.

Dr. Kuhn has observed in two cases a pulse of 50. A pulse rate of 50 or below, in cases of injury to the abdomen, is pathognomonic of ruptured liver. This bradycardia is due to an absorption of the bile salts from the injured liver surface. This is frequently observed in cases of obstructing jaundice.

I am sure we all agree with Dr. Kuhn that these cases are to be operated on early—operated on without waiting for positive signs. If we wait for positive signs, which indicate the presence of a peritonitis, the most favorable time for operation will have passed. Later, as in the case in which Dr. Kuhn operated thirty-six hours after injury, following which the patient died of generalized peritonitis, I think the treatment should be conservative, unless the condition originally is one of generalized peritonitis. This is exemplified in Dr. Kuhn's case, which he operated on the seventh day with a resulting cure.

I have had an opportunity to observe a number of Dr. Kuhn's cases and admire the fearless and capable way in which he handles them.

Dr. Nelson M. Percy: It has occurred to me tonight in connection with these abdominal injuries that possibly the further development of the use of the abdominoscope may prove a valuable aid in the diagnosis of these conditions. I believe the use of the abdominoscope is more than a passing fancy. Recently Dr. Nadeau has been using it in our clinic and within the last few weeks he has demonstrated two cases of carcinoma as being inoperable by demonstrating multiple metastases. Another case which came in last week diagnosed as diffuse abdominal carcinomatosis was, by means of the abdominoscope, proved to be tubular peritonitis. Possibly in some of these cases of abdominal injury in which the patient refuses to submit to an exploratory operation he will submit to the use of the abdominoscope. I do not believe one could always locate a small rip in the intestine by this means, but there will be at least a small amount of blood present in the region of a ruptured viscus and I think even a small amount can be demonstrated with the abdominoscope, indicating that there is an intra-abdominal injury present. These patients do not suffer any more discomfort, and frequently not as much, as follows the use of the cystoscope.

From the charts the Doctor presented it is evident the success of the treatment depends upon the early diagnosis and prompt action, and I think it is important to make an early and as positive diagnosis as possible.

As to the treatment in these cases of ruptured viscus, I believe simple suture should be carried out whenever possible. This can usually be done in this type of injury because the intestines are rarely injured on their mesenteric side. In the cases which can be operated on within twelve hours after the injury a simple closure of the intestine and closure of the abdomen is all that is necessary. In the cases that are operated on after twelve hours I believe that besides closing the intestine a catheter drainage should be placed in the intestine proximal to the point of injury. After twelve hours there is apt to be at least a localized peritonitis. With this there will be abdominal distension, and with this distension there will be danger of leakage at the suture line. By placing the catheter drainage we allow the escape of gas and there will be very little abdominal distension. I am sure some of the cases operated on after twelve hours can be saved by the catheter drainage.

Dr. Kuhn spoke of one case of injury of the pancreas but did not say whether he used drainage. I wish to ask about this for I believe in cases of injury to the pancreas a drain should be placed down to the wound in the pancreas.

Dr. J. Holinger: In 1892 I saw a patient with rupture of the aorta, with my friend Dr. Banga. A few days previously the man had eaten a heavy dinner and when he arose swayed back and forth and then fell down, unconscious. He was put to bed and Dr. Banga saw him a few moments later. There was a very small pulse and marked dyspnea. The dulness over the heart was much larger than normal and extended into a dulness on the left at the base of the lung.

There was no paralysis. The man was unconscious for two days but slowly regained consciousness and made a recovery which extended over a period of eight months. During this period there was at times increased fluid in the pericardium and as that disappeared the fluid in the thoracic cavity increased. For a while there was fluid in the abdomen. After two years he recovered sufficiently to go to Europe to live and he died six years later in Munich, where a careful postmortem examination was made. Dr. Banga received an accurate protocol of the examination, which stated that there had been a rupture of the aorta in the convex part of the arch at the insertion of the pericardium. The rupture was about $\frac{3}{4}$ cm. long, partly inside and partly outside the pericardium. Dr. Banga had made that diagnosis at the time of the accident, and maintained it against several diagnosticians who insisted upon the impossibility of such an occurrence. Six years later his opinion was verified.

Dr. Kuhn, in closing, thanked the gentlemen who had taken part in the discussion.

Replying to Dr. Harsha in reference to fracture of the ribs he stated that one case of rupture of the aorta showed a line of fracture, without separation.

In reply to Dr. Percy regarding drainage of the pancreas, the patient died before the operation was concluded so there was no opportunity to try his method.

INTESTINAL PROTOZOA AND CHRONIC DISEASES WITH ESPECIAL REFERENCE TO CHRONIC ARTHRITIS*

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The average physician's conception of the human intestinal protozoa is expressible by the two-fold idea: that the infection has been acquired in a tropical country, and that some form of dysentery is a constant symptom. The above conception generally contains the very closely related ideas that only one of the myriads of species of these microscopic organisms can be pathogenic to the human race, and that this particular organism must always produce the same pathology in every infected individual.

There are several reasons why this infection is seen more in tropical than colder latitudes. In the first place, the organisms require more or less heat and moisture for propagation. Their resting stage between hosts is much better protected where the climate is mild or warm. The habits of their tropical hosts may be and gener-

ally are different from the manner of life of those in the colder latitudes. We may state that it is easier for a protozoan cyst to live outside of its host in a warm season than during cold weather. But this fact concerns mainly the transmission of the infection. The environment of the host certainly exercises a marked influence on the course of these infections. The patient's resistance, anatomical structure and physiological habits are the greatest factors determining the sequellae of any protozoan involvement. If we only could know the chemical components of an upset physiology or a metabolic imbalance we would be able to attack this problem more satisfactorily. It is the chemistry of these protozoa as much as our own that baffles us. We do not know what takes place in ourselves that enables these organisms to live so closely and so persistently with us. Clinically they resemble our dreaded forest fires. They may begin their invasion in a smouldering fire or sweep suddenly out over extensive areas as a great blaze. This intermittent blazing and smouldering character of the infection is seen more often in our latitude than in the tropics. Neither the infection nor its geographical distribution is new. Its wider dissemination is due to our various social turmoils of trade and war. It is a part of the price of commerce and sociability. It is "age old and race wide" and depends neither on climate nor country for its existence.

The symptom of dysentery is very misleading. It chiefly signifies lower colon or rectal irritation, although the upper colon may be at times the important seat of trouble. The most extensive lesions usually produce most dysentery. However, a very widespread and extensive protozoan infection often exists with a very profound and stubborn constipation. It may even be present with a seven to eight day cecal retention. In the presence of a diseased gall-bladder or pancreas a dysentery or diarrhea started from a colon irritation may continue indefinitely until the adnexal infecting focus is cleared up. Obstructing hemorrhoids or uterine fibroids may prolong a dysentery, the etiology of which has disappeared long before. There is no doubt that accumulated intoxication is a most frequent accompaniment and cause of intermittent diarrhea with constipation. This accumulated toxin probably acts in the same way as any other chemical irritant. In addition to irritating the intestinal

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mechanism these toxins when absorbed enter into the course of many of the chronic diseases, as we shall attempt to show below. Strangely enough, the conception of protozoan toxemia is not a very prevalent one medically. However, our most deadly toxins seem to be found among the large protein molecules, as in snake venom and the ptomaines. The toxic expression in many chronic diseases is only the slowing down process present in the acute forms referred to above. Add to this poison, the effect of a disturbed physiology of particularly affected organs and the chronic pathology is that of the chronic protozoan case.

In the light of the above reasoning it seems again plausible that the same organism may apparently produce a varied pathological picture. It may be considered etiologically as a modifier of both physiology and pathology. It can occur in both the acute and chronic forms and in that guise may be as varied in picture as lues, leprosy, or tuberculosis.

This variation is further enlarged by the great variety of organisms. Besides the ameba histolytica or dysenteriae, there are many other protozoa concerned in this pathological role. As clinicians we should concern ourselves more with finding protozoa than with one of its species—the ameba; for undoubtedly, as with bacteria, we are dealing with numbers of pathogenic species.

The geographical distribution of these organisms is extensive. In checking over our present series of cases, we find thirty-two states and eight foreign countries represented. The histories clearly indicate that the disease was incipient in these different localities. Certain of our central states make up as much as thirteen and fourteen per cent of our total cases.

The organisms encountered in the order of their frequency are chilomastix mesnili, the amebas, trichomonads, Giardia or Lamblia, crugia, and Waskia. The blasto-cysts, the spirillae and the fatty crystals deserve significant mention although they are not protozoa. For a differential study of these organisms the reader is referred to the works of Kofoed, Dobell and others. Alfred C. Reed¹ has given a terse, plain and helpful description from the practical clinician's standpoint. However, in acquiring knowledge of these organisms no amount of textbook description can take the place of laboriously

repeated microscopical examination of the stools. With such labor and repetition the "protozoan eye" will certainly be gotten. With such an attainment the identification of organisms is not essentially difficult. Without discussing their cytology, I think we may mention some of their habits and our clinical impressions of them as species. Culturally we can say little about them. None of them has ever been grown in either the profusion or the purity necessary for experimental work on either their toxins or their etiological relations. As we find them in daily practice, the chilomastix undoubtedly predominates. It occurs two or three times as often as the amebas and is almost two to one with all other protozoa combined. It is common in the cases of short diarrheas alternating with longer periods of constipation. It is associated most frequently with the clinically toxic case showing colon stasis and periodic "spells" of unknown etiology and varied symptoms. Rae Smith² has repeatedly demonstrated this type of a case in his extensive work on colon stasis.

The ameba dysenteriae or histolytica is probably, as to name, the best known of the entire group of protozoa. It is undoubtedly the greatest tissue invader of the entire group. While there is much proof that it may establish its habitat in any organ of the body, its home is predominantly in the colon. By blood or lymph stream it may be carried to any part of the body, where logically its death is sudden and sure because its resistance is extremely low. As a cyst, however, it exists both in the colon and outside of the body. Recently Sellards³ has proven that the cysts may excyst within the colon as well as the upper ferment-producing intestinal tract. He has introduced a strong proof that we may reinfect ourselves by our own cysts. This organism may produce dysentery. It is found most often in constipated cases, accompanied by such symptomatology as arthritis, neuritis, iritis, melancholia, malnutrition, and neurocirculatory-asthenia. In the diseases showing so commonly a hidden toxic element, these organisms are abundantly present in the colon in a percentage too high for coincidence.

The trichomonad is a very active and abundant organism and is often associated with irritative symptoms such as the simple but persistent attacks of diarrhea or general intestinal un-

rest. The nutritive state is often upset and the symptoms blend closely with those of the amebic cases. The trichomonad diarrheas are sometimes very intractable if not practically incurable. These organisms seem to be able to inhabit the digestive tube from the pylorus down. A different species is able to produce a practically incurable infection in the cervix uteri.

The giardia or *Lambli*a is about fourth in incidence. It possesses a sucking pad enabling it to adhere smotheringly to the cells of the mucus membrane of the duodenum. We have found it present in a number of duodenal ulcer cases and in all cases there is a distinct duodenal symptomatology. The cysts abound in the colon, but the active organism is seldom found in the stool.

The *Craigia* and *Waskia* are not very often found, but may exhibit themselves in cases similar to those described above.

The blasto-cyst may be only a yeast, but it has all the protozoan earmarks. It should always be recognized because of its being so often associated with one or the other of the protozoa.

The fatty-acid-like crystals or needles should be mentioned with protozoa because they are found so often together. They are probably not fatty-acid but are certainly an evidence of a disturbance in digestion or metabolism.

Next I shall take up the varied clinical picture when these protozoa are preponderously present somewhere in the human digestive tract. This clinical picture must be a composite one because of the multiple factors concerned. It would be preposterous to discuss all bacterial diseases under one clinical head, and the reason for this needs no elaboration. If we were without cultural and animal-experimental proof with bacteria, the etiology of bacterial disease would then rest on the same basis as does protozoan infection now, and that would be essentially a clinical picture of great variation. It so happens clinically, without any effort to prove anything or to establish any new law, that certain diseases whose bacterial etiology is still unproven, are heavily laden protozoan carriers; and furthermore, amelioration of the clinical condition goes hand in hand with the progress of protozoan eradication. I realize that this is not an infallible proof of etiology, and I do not give it as such; however, you will all agree with me that

successful administration of diphtheria anti-toxin has convinced us of the etiology of the disease when the proof was only clinical. Much stronger is the claim when clinical syphilis is cured by salvarsan in the absence of all laboratory proof. Etiological malarial fever is hardly doubted, when the usual treatment results in a substantial clinical cure. So it seems to me that it ought not be so hard for our etiological camel gulpers to swallow an occasional gnat. At this time I do not wish to present these organisms as the sole cause for certain pathological entities. I wish rather to point to them as a highly potential factor in influencing the course of several chronic disease states, chief among which are chronic arthritis of Ely's Type 2,⁴ certain types of neuritis, especially those connected with malnutrition as worked out by McCarrison; iritis of the systemic type as described by Lloyd Mills,⁵ the neurocirculatory asthenias as reported by Harlow Brooks,⁶ and other well known but not etiologically diagnosed conditions. There are certain constants in the clinical history, physical findings, and laboratory examinations of these patients that cannot be disregarded in the reasonings from cause to effect. The diseases are essentially chronic. The patient's total vitality and functions are lowered. There is a lack of energy and interest even to the point of self destruction. Often the symptoms are duodenal, as in ulcer, or cecal, as in chronic appendicitis, even with the appendix removed. Wherever the complaint may be localized, the digestive apparatus is involved somewhere in the history. Harlow Brooks⁶ in discussing "Neurocirculatory Asthenia" says, "constipation, frequently alternating with diarrhea, is common. Mental status greatly influences all the gastro-intestinal signs and symptoms." To my way of thinking, it is more nearly true to reverse the sentiment of his last sentence; for clinically and by laboratory findings "the gastro-intestinal signs and symptoms greatly influence the mental status." The above chain of symptoms is not improved by the removal of the ordinary foci of infection such as teeth, tonsils, etc. However, this is not an argument against focal infection. It is only adding another big focus.

Following this chain of complaints through, we find the ending so often is chronic arthritis, neuritis, iritis, malnutrition, endocrine disfunction, mental and nervous disorders, epileptiform

attacks and even diabetes. No one thing could ever be the cause of this array of syndromes. Yet they have several things in common, and one very important thing is the almost constant presence of some one or many of these protozoa in the intestinal tracts of these patients.

The physical findings, in addition to those of the leading ailment, reveal generally tenderness over the affected viscera, a low blood pressure and by x-ray some faulty intestinal mechanics, due to chronically formed adhesions produced by former protozoan infections.

The laboratory specifically may be expected to show a low normal in leucocytes and more especially a depression in the polynuclear cells from a low normal to even forty per cent. In such a case, an ulcerative appendicitis will not show a leucocytosis until rupture has occurred and time has elapsed for the bacterial invasion to change the blood picture. Here the leucocyte count is not so much the evidence of a lowered resistance as it is the proof of a chronic protozoan process giving way to an acute bacterial invasion.

The stool analysis fits harmoniously into the above findings. It may or may not contain blood and is generally alkaline in reaction. The percentage of needle-like crystals, in clusters and singly, is very high. Blastocysts are fairly common and often occur in the worst cases. With the above clinical, physical and laboratory picture, protozoa of some type are present in practically one hundred per cent. The percentage is certainly too high for coincidence.

The following cases have been selected illustrative of certain representative groups showing the picture referred to above.

Case 1. Arthritis, Ely's Type 2. Mrs. McL. Age 60. Duration four years. Severe pains in hands, elbows, shoulders and knees. Walks with much difficulty. Bowels generally constipated with periodic diarrheal attacks. Teeth out five years ago. Tonsils out eleven years ago. Bp. 110-80. Cecum and sigmoid full and very tender. Wbc 5000, Poly 68, Monos 32. X-ray negative for stasis. Stool shows triple plus active chilomastix with one plus crystals.

Results: After one and one-half years' treatment, improvement marked. Free from pain. Uses hands, fingers and elbows freely and walks well.

Case 2. Arthritis, Ely's Type 2. Mr. O. W. Duration four years. Generalized painful joints with apparent ankylosis of left knee. All joints involved and many with right angle contractures. Tonsils out and all teeth good. General abdominal tenderness with painful sigmoid. X-ray showed no stasis or gall-

bladder or appendiceal involvement. Wbc. 5000, Poly 55, Monos 45. Stool shows chilomastix and cysts double plus with one plus crystals.

Results: Patient able to walk about and use joints freely the first time in one and one-half years.

Case 3. Arthritis, Ely's Type 2. Mrs. A. H. Age 25. Has suffered from chronic arthritis and bronzing of the skin for three years. Completely bed-ridden. Unable to move upper or lower limbs. Severe pains throughout all joints. Bp. 100-60. Teeth and tonsils normal. X-ray shows chronic appendix and cecal adhesions with a 96 hour cecal stasis. Wbc. (during bronchitis) 11,300, Poly 62, Monos 38. Stool loaded with ameba dysenteriae, ameba coli, chilomastix and crystals. Appendectomy and surgical correction by Dr. Wm. H. Olds.

Results: Patient walks to office for treatment; has fully seventy per cent restoration of function and the pains are nearly all gone.

Case 4. Arthritis, Ely's Type 2. Miss H. F. Age 22. (Referred by Dr. Leonard Ely.) This patient has suffered from chronic arthritis and enterocolitis for eight years. Wrists, knees and elbows badly involved. All joints show changes. Bowels severely constipated. Tonsils out eight years. Cecum and sigmoid very tender. X-ray shows stasis and cecal adhesions. Wbc. 5500, Poly 63, Monos 37. Stool shows abundance of chilomastix and numbers of ameba dysenteriae. Appendectomy and surgical correction by Dr. Olds. Usual treatment carried out. Results: Has regained normal weight and walks comfortably now after having been in wheel chair and bed for years.

Case 5. Arthritis, Ely's Type 2. Mrs. M. S. Age 70. Duration ten years. Chronic arthritis, all joints both hands. Patient also has entero-colitis with some myocarditis. Bowels severely constipated. Bp. 140-70. Teeth out. Tonsils negative. Systolic heart murmur. Severe tenderness descending colon. Wbc. 6400, Poly 56, Monos 44. Stool shows abundance of chilomastix and cysts, also spirillae and crystals. Urine examination shows the presence of indican.

Results: Pains and swelling practically gone. All joints useful.

Case 6. Arthritis, Ely's Type 2. Mr. H. M. Age 40. Duration 2 years. Arthritis of all joints, deforming. Severe constipation. Bp. 115-75. Teeth O. K. Tonsils out. Appendix out. Very tender cecum. Wbc. 8800, Poly 69, Monos 31. Stool shows active chilomastix and ameba dysenteriae. The x-ray was negative for gall-bladder, adhesions or stasis. Results: After one year of treatment, patient does full work, takes mountain hikes without pain.

Case 7. Iritis. Mr. S. Age 40. Duration five years. Bilateral recurring iritis. Bowels constipated. Bp. 110-70. Teeth good. Tonsils out. Iridectomy, right eye. Pupil in left eye fixed from adhesions. Tenderness over cecum and sigmoid. Wbc. 5700, Poly 60, Monos 40. Patient had twenty-six negative Wassermann tests. The stool examinations showed an abundance of ameba dysenteriae. The x-ray was negative. Results: No results from fifty injections

of neo-arsphenamine and many treatments of gonorrheal vaccine. Prompt relief and a discontinuance of atropine and symptoms on anti-amebic treatment.

Case 8. Iritis. Miss N. M. B. Age 45. Duration ten years. Chronic iritis, stomach trouble and intestinal colic. Periodic constipation and diarrhea. Bp. 80-50. Teeth cared for. Tonsils out. Sinuses negative. Right eye previously removed, left severely inflamed. Abdomen extremely tender over entire colon. Wbc. 6800, Poly 63, Monos 37. Stool examination showed ameba dysenteriae and chilomastix. No blood was found. Results: Inflammation cleared up after routine amebic treatment.

Case 9. Iritis. Mr. C. C. Age 24. Amebic iritis. Duration two years. Recurring iritis. Right eye previously removed to stop iritis. Bowels usually constipated. Bp. 115-80. Left eye inflamed. Teeth O. K. Tonsils out. Sinus O. K. Abdomen tender over entire colon. Wbc. 8800, Poly 67, Monos 33. Stool examination revealed ameba histolytica, or dysenteriae councilmania and trichomonads. The x-ray was negative. Results: Treatment cleared up iritis. Patient has remained well for last ten months.

Case 10 .Mental Type. Mrs. L. E. Age 46. Melancholia and enterocolitis. Duration four years. Very nervous and melancholy. Bowels always constipated. Bp. 90-70. Tonsils and teeth in good condition. Sigmoid very tender. Extremities negative. Ameba histolytica and chilomastix shown in stool examination. The x-ray was negative. Results: Before treatment patient attempted suicide. Six months after treatment she was very happy and well and mental state was normal.

Case 11. Dysentery Type. Mr. B. A. V. Age 35. Chronic amebic colitis—anemia. Duration eight years. Watery stool, three to ten daily, blood and mucus. Loss of weight. Poorly nourished, anemic. Bp. 90-60. Teeth and tonsils in good condition. Entire colon tender. No hemorrhoids. Wbc. 7000, Poly 59, Monos 41. The stool examination revealed active ameba histolytica and blood. Results: Treatment off and on for one and one-half years resulted in complete cure.

Case 12. Epilepsy. Mrs. M. C. B. Age 29. Epilepsy and chronic enterocolitis. Duration fifteen years. Epileptic attacks and loss of weight. Bowels constipated. Bp. 100-55. Slightly anemic. Tonsils chronic. Teeth out. Thyroid large. Slight tremor of hands. Tender cecum. Appendix scar. Wbc. 7000, Poly 47, Monos 52. Sputum negative. Ameba histolytica found in stool examinations. No blood. The x-ray was negative. Results: Attacks very much lighter. Last one eight months ago.

The treatment aims first to eradicate the intestinal protozoa and second to correct the secondary pathology. For the former there is no specific parasiteicide. In fact, our failure to kill these organisms by some specific drug or method of treatment is often urged as a proof against the pathogenicity of these parasites. That there

is no specific treatment is evidenced by the number of drugs and devices used to cure these conditions. When carefully and properly used, ipecac and its alkaloid emetin are basic drugs, the use of which is of common pharmaceutical knowledge. Arsphenamine and its derivatives have proven helpful, especially with giardia, and probably aid in amebiasis. The enemata are in common use and serve a good purpose but should never be used to the point of irritation. Diet probably has no influence on the growth of the organisms and little effect on the disease treated. However, Kessel⁷ working in Kofoid's laboratory has shown that animals rid themselves of amebic cysts when confined to a diet of milk. Clinically protein diets have very little influence on the organisms in question. Good food is the best diet and should be selected to influence either diarrhea, constipation, obesity, or malnutrition.

The treatment of arthritis is certainly always medical and orthopedic. Many cases require corrective abdominal surgery before either of the above treatments can accomplish results. Neither orthopedic nor medical care can restore normal physiology of the intestinal tract in many of the severe arthritis cases. The protozoa are to abdominal pathology what the gonococcus is to gynecology. The medical study should determine the surgical need. The one word, persistence, is the keynote in all treatment.

In conclusion I wish to stress the following things:

The distribution of human protozoal infections is widespread. There is no one symptom by which their presence may be known clinically. They are associated with diseases exhibiting depressive and toxic syndromes as yet unexplained in medicine. They exist essentially in a chronic state. Their eradication is slow, tedious and at times uncertain as is the treatment of chronic diseases. Persistence in treatment with rational honest effort on the part of both physician and patient make up the morale necessary to win this great battle against chronic disease.

Especial appreciation is expressed to Miss Estella Campbell for her careful and scientific laboratory work.

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THE RELATION OF ETHMO-SPHENOIDITIS TO SOME DISEASES OF THE EYE, EAR, AND OTHER ORGANS*

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In preparing this paper the author has made no special effort to be original, but rather to correlate and systematize all of the more or less limited information on the subject from the experiences and investigations of others, which are in harmony with the results of a fairly thorough study of, and a rather wide experience in this, one of the most important, if not the most important field, in the realm of the otolaryngologist.

Of all the accessory sinuses, the ethmoid and sphenoid are least understood, for the very good reason that in the past it has been far more difficult to diagnose disease in these particular cells, than in the others. But with the assistance of improved methods we are enabled to diagnose disease in these as readily as in the other cells; and as we go more and more deeply into the subject, we are able to uncover quite a few surprises for the diagnostician. The etiology of disease in other organs leads us unerringly to disease of the ethmoid labyrinth and sphenoid sinus, as a predisposing cause so frequently, that I sometimes find myself wondering if they can be the center of disease-distribution for the entire body.

Anatomy. Before I go into my subject, I think that perhaps it might not be unwise to devote some time and space to a description of the anatomy of this region, and the relation of the particular sinuses in question to the adjacent parts. This knowledge may enable us to better understand what is to follow.

The ethmoid labyrinth and sphenoid sinus bear

a peculiar anatomical relation to each other and to the surrounding parts, as will be seen. The ethmoid labyrinth forms during fetal life and is fully developed at birth, while the sphenoid sinus forms during the first three years of post-natal life. The labyrinth embraces all that portion lying between the two internal lateral plates of the orbit. They are therefore separated from the cellular tissue which covers the eye only by the thin layer of bone known as the lamina papyracea. They lie in the lateral wall of the nose external to the middle turbinate, and extend antero-posteriorly from a point beneath the frontal sinus to the anterior wall of the sphenoid. The ostium which drains the most posteriorly located cells of the labyrinth lies so close to the ostium of the sphenoid that disease-secrections from the one invariably intermingle with those from the other. So that, when one of these groups of cells is diseased, the other is invariably involved. That, at least, has been my experience. Both the ostium which drains the posterior cells of the labyrinth, and the one which drains the anterior group, lie external to the middle turbinate, and we must not lose sight of this fact for a moment when seeking a cause for disease in this region. A very slight thickening of the middle turbinate may cause impingement upon the ostea, resulting in impaired ventilation and drainage and ultimately in a development of hyperplastic ethmo-sphenoiditis or even of an empyema. I shall make no attempt to separate the cells of the ethmoid labyrinth into anterior and posterior groups, as I have not found them so separated in disease.

Lastly, I wish to call your attention to the fact that the optic chiasm and the pituitary body lie on the roof of the sphenoid cavity, and the canal through which the optic nerve and its accompanying vessels pass, lies within its inner lateral wall. Meckel's ganglion lies on its external antero-lateral wall between the sphenoid cavity and the most posteriorly located cells of the ethmoid labyrinth.

Etiology. As in the study of the anatomy of this region we find it developed during early childhood, so in the study of the etiology of disease in these parts, we go back to childhood to find the beginning development of the predisposing causes of disease. There is undoubtedly a hereditary factor to be considered in

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a certain percentage of cases, for I have seen sinus-disease present in several members of the same family at the same time, and in different generations of a line at different times. So also does environment, such as climatic conditions and ventilation of the sleeping-room play an important part in predisposing to disease in this region. But most important of all in predisposing the ethmoid labyrinth and sphenoid sinus to disease, are deformities of the middle turbinate bones, and the septum. But back of this and of primary importance in the development of deformities in the nose are, early hypertrophy of the palatine tonsils and Luschka's glands, and the habit of thumb-sucking, and use of pacifiers. All of these have a tendency to cause a lengthening of the alveolar process in its anteroposterior axis, and resultant bending upward of the hard palate, which encroaches upon the inferior meati of the nose and causes a bending of the septum with which it articulates superiorly, together with an interference with both the ventilation and circulation of the nose and accessory sinuses. So we usually have the vicious circle which results in disease of the ethmo-sphenoid regions, developing during the first few years of life. In this connection, let me add, that the profession has been unpardonably slow in recognizing the importance of investigating the sinuses in every case of purulent discharge from the nose, during even the earliest years of childhood. Those old cases which in the past have been called "snuffles," with complications of eczema on the face and phlyctenular conjunctivitis, were nothing more nor less than manifestations of chronic suppurative ethmo-sphenoiditis, in nearly every case. I have a series of these cases ranging from three years of age up, in which I was able to make a positive diagnosis of an involvement of the ethmoid labyrinth and sphenoid sinus. They were relieved by removal of tonsils and adenoids and then spraying the nose with menthol in alcoholine.

Classes of Cases. If a patient presents himself for examination, with a history of frequent sneezing, accompanied by loss of the sense of smell, dull headache, mouth-breathing, and bronchial asthma; and if a rhinoscopic examination reveals the presence of a nose filled with polyps and pus, the diagnosis is apparent even to the most casual observer; but if the patient gives a history of having a postnasal discharge, particu-

larly annoying in the morning, on account of the thick tenacious secretions which accumulate in the nasopharynx and pharynx over night, then we have quite a different problem to solve. We might be dealing with a suppurative process involving any or all of the chain of accessory sinuses which surround the nose, and it requires a differential diagnosis to determine which.

There is still another class of cases in which there are no subjective symptoms referring to the nose and which are usually referred to the rhinologist by the ophthalmologist, the latter having come to recognize certain diseases in their field as owing their origin to pathologic conditions of the accessory sinuses. Such cases are increasing rapidly both in number and variety.

For several years, Hajak, who was my preceptor, Saint Clair Thomson, and Sluder have recognized that most cases of optic neuritis are secondary in origin to disease primarily involving the ethmoid labyrinth and sphenoid sinus: but not until recently have they or any of their school realized what a great variety of diseases owe their origin to infections of, or a lack of ventilation in, these particular sinuses. Iritis, optic neuritis, choroiditis, keratitis, phlyctenular conjunctivitis, orbital cellulitis, and blepharospasm constitute only an incomplete list of the diseases of the eye and its appendages which have been proven to be secondary to disease of the cells under discussion. Other organs which have been found involved in the seemingly endless chain of diseases growing out of a primary involvement of the ethmoid labyrinth and sphenoid sinus are: the middle ear, heart, lungs, stomach and different members of the endocrine family, the latter system becoming involved undoubtedly through disease of the pituitary body, which, it will be remembered, bears a close relation to the sphenoid cavity. The ear becomes involved through the Vidian nerve; and the heart, lungs, and stomach through the sympathetic branches from the cervical plexus, which also communicate with Meckel's ganglion. I had a case belonging to the endocrine class, with involvement of the pituitary body secondary to an ethmo-sphenoiditis, with the typical symptoms of suppressed menstruation, increased adiposity and so forth, that go to make up the symptom-complex usually found in disease of this organ: all of which cleared up following exenteration of the

ethmoid labyrinth and removal of the anterior walls of the sphenoid sinus.

The profession was for generations at sea as to the etiology in many of these cases, for the very good reason that there seemed to be a missing link. They did not connect disease in these organs with disease in the sinuses, for the reason that they did not know there was direct circulatory communication between the sinuses and the adjacent parts. But Uffenordt found vessels communicating between the membrane lining the sphenoidal sinus and the optic sheath in the optic canal—*post mortem*; Sluder found a lesion on the wall of the optic canal, on examination of the sphenoid cavity, after removing the anterior wall, in a case of serous iritis; and Kleijn and Gurlach found an encapsulated diplococcus in the secretions and membrane of the sphenoid and the optic sheath, in the optic canal, and in the optic nerve—*post mortem*. These investigators have, in my opinion, proved conclusively that there is direct communication between these sinuses and the adjacent organs. If we needed any further proof than this, I think we get it when, after placing a cocaine pledget of cotton on the lateral wall of the nose over Meckel's ganglion and waiting a few minutes, we find pain relieved in any of the parts of distribution of the sensory branches that pass through this ganglion. I am convinced that the effect of the anaesthetic could reach the ganglion so quickly only through perfectly formed channels directly connecting the lining membrane of the nose with the ganglion; and if it is true in this case, why should it not be true in the case of the sinuses and adjacent organs or parts?

In view of this knowledge it would surely be unwise for the rhinologist to make a negative report simply because there are no subjective symptoms of nasal disease and no evidence of an active sinusitis. A careful examination of such a case will usually disclose a septum with a superior deflection, accompanied by an hypertrophied middle turbinate on one or both sides. There may be no evidence of disease other than a slight blanching of the mucus membrane over the turbinates, so that they appear waxy, and a distinct glistening of the surface of the membrane covering the anterior wall of the sphenoid; and transillumination and x-ray are both negative. But Hajak, Sluder, myself and others have been able to demonstrate, repeatedly, that such a pic-

ture may be the primary cause of the very worst phases of secondary involvement of the eye and its appendages, or of an involvement of the heart, lungs, stomach or kidneys. It is not yet satisfactorily established whether the last named organs are affected by an auto-intoxication produced by disease in the ethmoid labyrinth and sphenoid sinus, or through nerve-influence. The writer leans to the latter theory.

We have as yet found no satisfactory explanation for the fact that diseases secondary to the low forms of inflammation in this region should be more virulent than in the more active forms, but it has proved true in practice. Possibly the germ has spent some of its virulence during an active suppurative process of the sinuses, before it reaches the adjacent parts. We know that nature makes a valiant effort to prevent the spread of disease; and I think I can see how such an effort might cause the production of a sufficient number of anti-bodies to reduce the virulency of the germs.

Diagnostic Aids. Transillumination is of very great value in the examination of the maxillary sinus. One seldom fails to discover evidence of disease in this sinus by the use of this diagnostic aid, if the technic is right. This is also true of the frontal sinus, if we bear in mind the fact that there is often only one of these sinuses and that it may extend beyond the median line. But I have found transillumination of very little value in diagnosing disease in the ethmoid labyrinth and sphenoid sinus.

The x-ray is a very valuable aid, and no surgeon should undertake an operation on any of the accessory sinuses without previously having had a radiograph made of the region affected. I have found additional isolated ethmoid cells anterior to the shoulder of the middle turbinate, and I have found a partition in the sphenoid cavity, which thus produced two distinct cavities. In the absence of a radiograph of the field of operation, in the presence of either of the anomalies mentioned above, the operation would prove a complete failure.

A Mazda lamp should be used in examining this region and a Holme's nasopharyngoscope is of invaluable service in the preliminary office-examinations.

In the presence of a frank suppurative process, it is usually quite a problem to determine which cells or groups of cells are involved. Because of

the fact that the maxillary sinus, frontal sinus, and anterior group of the ethmoid cells all empty their secretions beneath the middle turbinate at the same point, it is not difficult to determine that one or all are involved in a suppurative process; but it is something different to be able to say which of them are affected. It is also true that the mere presence of pus in the nasopharynx does not essentially mean that the ethmoid labyrinth and sphenoid sinus are involved. Skillern has suggested a method which I have found very satisfactory in making a differential diagnosis of suppurative sinusitis. Introduce a small quantity of powdered methylene blue on a cotton pledget, into the sphenoid, after thoroughly cleansing and drying all the meat. (The author has not always found it possible to probe the sphenoid cavity, because of the deflections of the septum, which are so frequently present in these cases). Then a small quantity is insufflated through a Lichtwitz needle into the maxillary sinus. The patient is instructed not to blow the nose or clear the throat until the next morning; then to use a large towel and blow the nose, but not too hard. He then uses still another towel, and spits into it the secretions brought up by rasping the epipharynx and hawking. A comparison of the color of the discharges will usually enable the surgeon to determine whether the anterior group of sinuses or the posterior group is affected. Then, transillumination and the x-ray will usually complete the diagnosis. However, we should not lose sight of the value of the subjective symptom—a continuous, general, pressure-headache, usually somewhat more marked in the frontal region, in an involvement of the ethmoid labyrinth and sphenoid cavity; also a tenderness at the naso-orbital angle and the objective symptom of tenderness in the infra-orbital region, in maxillary sinusitis.

Treatment. I believe that all uncomplicated cases of acute suppurative sinusitis should be treated by the suction-method. But with the first appearance of symptoms of complications involving the eye and its appendages, or other organs that may be affected by disease in the ethmoid labyrinth and sphenoid sinus, I practice surgical interference. If the case has reached the subacute stage before I see it, unless there are some special contra-indications, I advise immediate operation. In all cases of chronic sup-

purative ethmo-sphenoiditis, and in every case of hyperplastic ethmo-sphenoiditis with complications, I have found it wise to do a radical operation at once.

Choice of Operation. Andrews and others have advised conservatism in surgery, and the former (if my memory does not play me false) advises the fracture of the middle turbinate and an attempt to search out the particular cells involved and exenterate these only. Such a procedure has not proved successful in my experience, and I agree with Hajak, Sluder and Beck that a complete exenteration of the ethmoid labyrinth and removal of the anterior wall of the sphenoid sinus is the only sure route to success.

There are a number of good operations, any one of which might prove successful, if properly carried out. The main idea should be to develop a technic and follow it very religiously.

The following has proven successful in my hands: After saturating a pledget of cotton with adrenalin 1:1000, I roll it in flake crystals of cocaine and apply over Meckel's ganglion. Then, one or at the most two pledgets are used in the olfactory cleft, with the patients head bent well forward. About twenty minutes are required for complete anesthetization, in the average case. In a Jewess or an Italian woman a longer time may be required. Then with turbinate scissors I cut the middle turbinate, leaving it attached posteriorly; it serves as a very valuable landmark. Then I begin a half-inch anterior to the shoulder attachment of the turbinate, and with a curette scoop out all the cells of the labyrinth, being very careful not to perforate the lamina papyracea. When this is done I detach the turbinate and proceed to remove the anterior wall of the sphenoid sinus, with a Hajak forcep. No packing is used except a little cotton in the vestibule of the nose, on the side operated on. The following day I institute suction-treatment in the suppurative cases, and irrigation with a normal salt-solution, if, of the nonsuppurative type.

DISCUSSION

25 E. Washington St.

DR. J. A. CLARK, Chicago: Along the line of these cases that Dr. Thompson has just been reading about, there is something I have never seen but once in my life and never read of. A young man about 15 years of age came into the office referred to me some months ago. The history was that about 7 or 8 months ago he had contracted a little cold, an ordinary cold. While working around the school he became a

little sweaty and took a plunge bath in the tank. The next morning he got up with a complete paralysis of the right side of his face. That is all the symptom that he complained of. That paralysis remained constant for 5 months without any improvement whatever. One day he had a tremendous discharge of pus from his nose, the mother said, and from that time his facial paralysis cleared up. So that there was nothing from the time he came in except a very little ptosis of the upper right eyelid. The case had cured itself by discharge of pus probably from the ethmoid or sphenoid cells. The only tract that you can trace back where you get paralysis from an infection of the ethmoid cells and affect the facial nerves would be that rather round about way of infection following back through the Vidian nerve to the facial. If there is any other tract that it can get through I do not know what it is. It is a peculiar case, so far as I am concerned. I never saw one or read of any case or anything like that

DR. EDWIN MCGINNIS, Chicago: This is a very wide field, and certainly we all appreciate Dr. Thompson's covering the subject so very thoroughly. I have done a good deal of ethmoid surgery and for a good many years now I have been able to do anything I want to do with the ethmoid labyrinth without disturbing the middle turbinate at all, except to push it over towards the septum. If you preserve the middle turbinate and turbinal plate, you avoid a great deal of postoperative hemorrhage and always have a landmark so that if your first intervention on the ethmoid labyrinth does not clear up the case you can reopen it at any time you want to, and this goes for as long as the patient lives.

There is another interesting point. In all the ethmoid surgery I have done in the last year or two I have been very much surprised to find that in only one or two cases have any of the posterior ethmoid cells been involved, except the lower cell of the bulla. The lower bulla cell is classed as the posterior ethmoid cell because it drains behind and above the attachment of the middle turbinate. Following through the posterior cells you will be surprised to find that the mucosa looks like mother-of-pearl, like the inside of an oyster shell. The mucus membrane is not a bit edematous. Also, I think we have done a good many posterior ethmoid exenterations that were not necessary—when you stop to think that most of the trouble that comes from the ethmoid is bacteriological and that the anterior cell group constitutes a fine place for bacteriological growth, the cells of the anterior group are small, they drain underneath the attachment of the middle turbinate and the ostii are small and will be obstructed by swelling of the mucosa around the ostium and so stop the drainage.

DR. A. H. ANDREWS, Chicago: I had supposed and still believe that most of the rhinologists are following the more conservative way of handling the ethmoids. There was a time when Killian taught that thorough exenteration of the ethmoids the frontal the sphenoid and the antrum was the only way of handling these chronic inflammations, but he is reported to

have changed his attitude, while a good many of his admirers are still following the old teaching.

I fully agree with what Dr. McGinnis has said concerning the conservatism in ethmoid operations. Ethmoid disease may be caused either by infection or by closure of the openings with resulting rarefaction of air and negative pressure. The latter condition may cause all the results of the former except the absorption and the discharge of pus.

I am inclined to think that in the case which Dr. Clark mentioned the neuritis was kept up by the infection and that it did not recover until the source of infection was eliminated by the discharge of pus from the nose.

DR. W. MOORE THOMPSON (closing): In regard to the case Dr. Clark has so kindly brought to our attention, I would say it bears all the earmarks of a case of Bell's Palsy. The onset following a cold shock to the face and neck would seem to mark it as such. I doubt very much if the discharge from the nose bore a direct relation to the paralysis. However, I can see how an involvement of one or more of the accessory sinuses might so lower general bodily resistance, as to retard the recovery from a paralysis, such as that described by Dr. Clark.

In reply to Dr. Andrews I wish to state that, if by "conservative surgery of the ethmoids" he means that we should first try the suction method in all acute cases and that the surgeon should always make sure of his diagnosis, then we heartily agree with him, but if he means that we should fracture the middle turbinate and try to search out the diseased cells in each individual case, then he stands almost absolutely alone in that class of surgery. He would fall far short of success in at least 50 per cent. of his cases, and while he might get to re-operate upon most of those so treated in his clinic, only a negligible number of those so treated in a private practice would submit to a second operation. So I can find but two possible justifications for such surgery: That the radical operation on the ethmoids reduced the normal functions of the nose, or opened up the way for further complications, and neither has been found true by any of the great investigators.

THE SIGNIFICANCE OF THE COLON IN ABDOMINAL DISTRESS*

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It is not the purpose of this paper to bring out any new and startling facts in the diagnosis of abdominal distress, for I have none. It is hoped that we may stimulate a much-needed work, that is, more accuracy in the diagnosis of abdominal conditions. This paper will be

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limited to the discussion of the non-inflammatory irritations to the intestinal tract, particularly the colon, and their differential diagnosis.

In taking up a discussion of any part of the body we should review its anatomy and nerve supply. The colon is divided into the ascending colon, the transverse colon, the descending colon and the sigmoid colon.

The mucous membrane is composed of a smooth surface, simple columnar epithelium, long glands and a basement membrane. Next, the submucosa is made up of loosely arranged connective tissue that contains large blood vessels and nerve plexus of Meissner. Then the muscular coat is made up of an inner circular layer and outer longitudinal layer of smooth muscle. The outer longitudinal layer is not complete but is bound together by connective tissue. The outside coat of the bowel is the serosa, or the peritoneal layer.

In the connective tissue lying to the outer side of the circular muscle coat are the plexuses of Auerbach. These are groups of sympathetic ganglion cells whose fibers are non-medulated and reach the intestinal wall through the mesentery, from the sympathetic cords. From Auerbach's plexus, the fibers pass to the submucosa where they are associated in plexus with groups of sympathetic ganglion cells—the plexus of Meissner. From Meissner's plexus delicate fibrils pass to their termination in the muscularis, submucosa and mucosa. There is also some supply to the intestines through the vagus nerve.

It has been a long known fact through experiments that movements of the intestinal tract may be stimulated in many ways in addition to the direct stimuli.

First, *nervous irritation*. Everyone, no doubt, is familiar with the desire for stool or desire to urinate that comes after any fright, fit of anger, or intense responsibility. The athlete, as he is waiting for the gun to start the race, the actor who has a responsible part, the person who is frightened by a burglar—all of these will have an increased activity of the intestinal tract and particularly of the colon with a resulting desire for stool. Then the naturally high-strung, temperamental and emotional individual who lives a life of nervous tension has a constant tension on the nerves of the intestines and every increase of nervous irritability has a tendency to cause an increase in the normal peristaltic movements

of the intestines, causing, if persistent enough, a spasm of the intestine which will result in pain.

It has been said many times that if the nervous system of an individual could be controlled, the treatment of intestinal conditions would be relatively simple.

With this nerve irritation as the first cause of the non-inflammatory irritation of the intestines, it forms a definite basis for all the other causes.

Secondly, *mechanical irritation*. Mechanical irritation may result from one of two factors or from a combination of both. First, a ptosis of the colon. There has been a great deal of discussion, in the past few years, concerning the position of the stomach and bowels in the abdomen. Some very good men hold the view that the abdomen is made to hold the abdominal organs and therefore the position of the organs does not produce any symptoms. The opposite view is held by equally good men. Doctor Coffey, a very able surgeon of Portland, is the greatest advocate of this view.

It is not within the scope of this paper to discuss the ptosis problem except to point out that in the experience of many physicians there is a definite distress and pain in the abdomen due to this ptosis of the colon, associated, it may be, with ptosis of other organs and with a very definite constipation.

Doctor Coffey and his associates have gone through their records and have found that, of the patients going through their Clinic who had previously had the appendix removed elsewhere because of chronic appendicitis, seventy per cent had not been benefited. Doctor Coffey also states that he is convinced that more than half of the patients coming with chronic right-sided abdominal pain have no definite organic disease.

Secondly, mechanical irritation may be the result of the use of cathartics or large enemas. Based on the wide experience of many hundreds of cases of one of the leading gastro-enterologists of the world, this one cause, cathartics and large enemas with the factor of increased nervous irritability as a basis, is the greatest cause of abdominal distress. Everyone, no doubt, is familiar with the fact that cathartics and large enemas are two of the greatest factors in producing a chronic constipation. The physiology of the gastro-intestinal tract is such that it takes from twenty-four to forty-eight hours for the

residue from the food to pass through it. Therefore, if an individual is completely flushed out, either by a cathartic or by an enema, there is no more residue for a bowel movement for at least one or two days and very frequently for three days, because usually the patient, in this condition, has no appetite.

What is the function of a cathartic? It is to increase the intestinal peristalsis and produce a quick stool. We know many individuals who, as soon as they take a cathartic, have intense cramps and loose stools. If this is repeated and this same irritation to the intestinal tract goes on every day for fifteen or twenty years, what will be the result? Large enemas will cause the same irritation and in addition will dilate the bowel. We have seen many instances where, after a long-continued use of large two-quart enemas and cascade enemas, the bowel has lost all its tone and has become so relaxed that it would not function properly.

This long-continued irritation resulting in a spasm of the bowel will give clinical symptoms of pain, fullness, pressure and weight, gas in the abdomen, belching, etc. The pain and tenderness may be only on the right side or in the center of the abdomen below the zyphoid or it may be on the left side, but in many cases it is all over the abdomen in general. It is not known why, with these irritations, one particular area of the colon may be affected more than another part. These patients are usually in a very nervous condition and anticipate serious things. There are a few cases of constipation where cathartics have been taken over a period of years that have no distress or pain at all, but these are few in comparison with those that have distress.

The third source of non-inflammatory irritation to the intestinal tract is a fermentative condition resulting from the fermentation of foods forming carbon dioxide, methane and hydrogen sulphide. These gases act as stimuli to the intestinal tract, increase peristalsis and cause the symptoms mentioned before.

From all these irritations to the intestinal tract the normal peristalsis of the colon is increased from a slow, lazy peristalsis to a fast, hard cramp movement giving a typical group of symptoms. More than half of your case histories in general medical work will show symptoms similar to these—*distress in abdomen*.

fullness, pressure and weight, bloating, belching, gas from the bowel, rumbling and gurgling, constipation, cathartics, nervousness.

The distress in the abdomen will be varied. It may be a fullness, pressure and weight or a real cramp-like pain localized or generalized over the abdomen. Usually, however, in the non-inflammatory irritations the distress will be at the level of or below the navel. The distress is usually either while eating or within ten, twenty or thirty minutes after eating. It is usually present every day and after nearly every meal over a period of months or years, if the irritation is continued over that period. The distress is usually associated with belching and the passing of gas from the bowel and in a great many cases there is also rumbling and gurgling throughout the abdomen. There is usually a history of long-standing constipation and of the use of cathartics or large enemas every night or every few nights over a period of a great many years. The nervous condition of the patient is practically always increased and headaches are many times an associated factor.

The above group of symptoms and history is very typical of the non-inflammatory irritation of the intestinal tract. If these cases were clear-cut and always indicative of non-inflammatory irritations of the intestinal tract, the diagnosis of abdominal conditions would be simple, but unfortunately, the symptoms can be very closely simulated by symptoms that are caused by inflammatory processes in the gall bladder and in the appendix.

The symptoms of an acute appendix or of an acute gall bladder condition are usually definite and clear-cut so that with the aid of the temperature, leukocyte count and the type of abdominal distress the diagnosis may be very accurately made. It is the sub-acute and chronic type of appendix and the old chronic gall bladder with or without stones that very closely simulate the above symptoms. A recent case brings to our attention just such a condition.

A patient came in for diagnosis of his abdominal distress. He was a very neurotic individual and complained of varied symptoms. His chief symptom was pain in the abdomen below the zyphoid and general pain over the entire lower abdomen. This was an intermittent, cramp-like distress associated with a fullness, pressure and weight that came on usually within a half-hour after eating but sometimes not until the next meal. His mother stated that he had had more

or less stomach trouble all his life. His bowels were alternately loose and constipated. After a complete examination had been made and temperature was normal, leukocyte count normal and a complete x-ray examination of the stomach and bowels together with test meal showed a normal condition, he was put on accurate bowel management. He cleared up in a few days and was apparently cured. In a few days his pain returned, this time no more localized than before and again he was put under observation. One day his pain localized very slightly over the region of the appendix associated with a leukocyte count of 17,800. There was no temperature or any other change in symptoms. Surgery was advised and a sub-acute, thickened appendix containing fecal stones was removed and the patient is apparently cured.

There are many, many histories that could be cited that are very similar to the above case in the beginning, clinically no difference, that were put on accurate bowel management and were cured and stayed cured.

There are relatively few bowel conditions mistaken for appendix conditions in comparison to the number of bowel conditions that are mistaken for gall bladder symptoms. The reason for this is that gall bladder symptoms more closely simulate a bowel condition. If there is an intense pain in the abdomen under the right costal margin associated with jaundice, there is very little question as to the diagnosis, even the patient himself has the diagnosis made before he comes to the physician. It is the case where the two conditions are so closely simulated that requires diagnostic ability.

One point that helps one in the diagnosis of a gall bladder condition is that the distress, of whatever varied character it may be, usually comes on in attacks whether it may be one or two a day or one or two a week. Usually the patient is free from distress between attacks while in the non-inflammatory irritation of the intestinal tract the distress is present more or less all the time.

It is with these difficult cases that do not run true to form that I wish to say a few words tonight in regard to the methods of arriving at an accurate and final diagnosis.

There are two methods that have been taken in the past and these two methods have very wrongly divided the medical profession into surgeons and medical men when we are all physicians and there should be no division as far as diagnosis is concerned.

In the past a great deal of surgery has been

done only on the diagnosis of a right-sided abdominal pain making it an exploratory appendix or gall bladder. This, needless to say, has given surgery a wrong place in the minds of most laymen and some physicians because the larger percentage of these abdominal distresses, as mentioned above, are due to non-inflammatory irritation of the intestinal tract and the removal of the appendix or gall bladder or operating for subsequent adhesions will have no effect on the non-inflammatory irritation.

An equally deplorable condition has the so-called medical man brought upon himself when he has accepted most all of these cases of abdominal distress as non-inflammatory intestinal conditions and has treated them on bowel management, for many of these have resulted in a subsequent ruptured appendix, acute intestinal obstruction, acute cholelithiasis or perforated gastric ulcer, subjecting the patient to the far greater risk of an emergency operation.

Can we not meet on a common ground and each one be sane in his views of the two ways of arriving at a final diagnosis?

In every case of this varied abdominal symptomatology as given above, we should keep all of these possibilities in mind from the beginning to the end of the diagnosis. It would seem that the most logical way to handle these indefinite abdominal cases would be to do the thing that will cause the least risk to the life of the patient. Are we not endangering the life of the patient to a certain extent, small, in most Clinics, it is true, every time we submit them to an operation, and is there any one of us who would want an operation performed on him unless he knew it was the best that could be done?

When, after as accurate a diagnosis as can be made from your history, physical examination and laboratory and x-ray examination, the case is still doubtful, in view of the fact that the largest proportion of these cases are a result of non-inflammatory irritations to the intestinal tract, why not place these patients on strict bowel management and under close observation, remembering at all times the possibilities of an inflammatory basis for this distress and advising surgery if there is any logical reason for diagnosing a surgical condition.

With the handling of the cases in this way, the number of exploratory laparotomies will be

greatly reduced and many patients will be saved from a needless appendectomy or a cholecystectomy and will be cured without being submitted to the risk of an operation.

In conclusion:

1. Three main causes for the non-inflammatory irritations to the intestinal tract.

- a. Nervous system irritation.
- b. Mechanical irritation.

Cathartics and large enemas.

- c. Fermentative irritation.

2. The symptoms of non-inflammatory irritations to the intestinal tract are very closely simulated by symptoms on an inflammatory basis from the appendix and gall bladder.

3. In doubtful cases, as to the correct diagnosis, we suggest placing the patients on strict bowel management and keeping them under observation closely, remembering at all times the possibility of an inflammatory basis that may demand surgery.

COLITIS

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This condition has usually been discussed from the standpoint of the internist and is divided into simple catarrhal, phlegmonous and suppurative forms. The acute enterocolitis described in text-books of internal medicine, in which the lymph follicles of the ileum and colon are chiefly involved may bear the same relation to chronic appendicitis as "inflammation of the bowels" formerly did to suppurative appendicitis.

Diphtheritic or croupous enterocolitis may occur in the course of the acute infectious diseases, as a terminal condition in Bright's disease, cirrhosis of the liver and cancer, and as a result of inorganic poisons, such as mercury, lead and arsenic.

Phlegmonous ulceration of the bowel is very rare. Ulcerative enterocolitis occurs in acute infectious diseases and in cachexias in the form of stercoral ulcers, in which the lesion is the result of pressure necrosis, and, finally, as ulceration accompanied by diarrhea in which large areas of mucosa may undergo necrosis. Perforation or cicatricial contraction may result. However, it may be a symptom rather than a clinical

entity. Osler notes two cases which were operated upon under the mistaken diagnosis of appendicitis. The writer has encountered numerous cases diagnosed colitis which were cured by the operative removal of the appendix.

The accompanying illustration, showing a complete obstruction of the transverse colon as it crosses the lumbar spine, is an instance of hemorrhagic ulcerative colitis resulting in a paralytic ileus. The bowel proximal to the point of stoppage contains numerous enteroliths distending the bowel and producing ulcerations at their several points of contact. This patient had been treated over a period of six months for gradually



Fig. 1. Complete obstruction of transverse colon in case of ulcerative colitis resulting in paralytic ileus.

increasing hemorrhage from the bowel of unknown origin. X-ray examination with the opaque meal showed a complete stoppage at the point where the transverse colon crossed the spine forty-eight hours after ingestion of the opaque meal. On examination, masses could be felt within the abdomen terminating in the midline just above the umbilicus. There was marked tenderness and rigidity along the whole course of the colon, the leukocyte count was 18,000, and the temperature ranged from 100° to 101.5° F.

A diagnosis of ileus was made and immediate operation advised. Upon opening the abdomen the cecum and the ascending colon and the first half of the transverse colon were found to be filled with hard masses, some of which are shown in the accompanying illustration, which could be moved onward by stripping the bowel. Distal to the point at which the transverse colon passed the vertebra the bowel was flat. In various segments of the small bowel were areas in which the ileum was tape-like in appearance and then abruptly distended without the influence of any mechanical factor. Tracing the colon back to the cecum the appendix was found to be acutely inflamed, turgid and tightly bound down to the posterior aspect of the cecum. It was removed with considerable difficulty and a careful ex-



Fig. 2. Enteroliths in case of ulcerative colitis resulting in paralytic ileus.

ploration of the abdomen revealed no further pathology. The abdomen was closed without drainage. Oil enemata were given and the scybalous masses were all passed within five days, accompanied by much pain and hemorrhage. They are shown in the accompanying photograph.

Following the operation the patient had from fifteen to twenty-five passages of bloody serum daily. At first these were almost pure blood but each day the hemorrhagic element became less apparent and the stools took on more normal characteristics. At the end of three weeks there was no further blood to be found in the passages, and the patient had put on fifteen pounds in weight.

The paralytic ileus just described is exactly comparable to the vesical paralysis observed in cases of pelvic peritonitis involving the wall of the urinary bladder. In one case a boy was being catheterized because of his inability to empty the bladder. Examination disclosed a periappendiceal abscess in contact with the bladder wall.

All the bladder symptoms subsided upon draining the abscess and removing the appendix.

In another case a young man had suffered for three years from attacks of acute abdominal pain accompanied by elevation of temperature, leukocytosis, and tenderness and rigidity in the region of the appendix. He was treated for colitis but the attacks continued. In the absence of his physician I saw him in an attack and was told that it was exactly similar to previous attacks, and that his physician had told him that it was merely a colitis and would not be benefited by operation. It was argued, however, that in the absence of the discharge of mucous casts from the bowel there must be some cause for the symptoms already outlined. An exploratory laparotomy was done and a chronically inflamed subacute appendix was removed. Following this the patient had had no further attacks of colitis. It is the belief of the writer that even those cases of so-called mucous colitis have an infective origin. In many cases it is due to the periodic discharge of the infective contents of a chronically inflamed appendix being thrown into the colon. Various writers have described a mucous colitis caused by a disturbance of the nervous system. It is difficult to see how the large casts of the lumen of the colon which are thrown off in the so-called mucous colitis could be caused by a disturbance of the nervous system. It is believed that where a careful search is made for some irritating factor acting directly upon the sensitive mucosa of the colon that the true source of the colitis may frequently be found.

Intermittent constipation and diarrhea, that is colitis, is frequently observed in chronic appendicitis. The colitis is due to the accumulation of the products of infection in the appendix suddenly thrown into contact with the mucosa of the colon, when the pressure within the appendix is built up to a point which forces the valve of Gerlach. This release of the contents of the appendix is coincident with the disappearance of the classic symptoms of appendicitis and the onset of a colitis. It is, therefore, believed that every case of colitis should be considered from the standpoint of its etiology rather than as a pathological state *per se*.

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SOME MAJOR UROLOGIC CONSIDERATIONS*

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A discussion of major urologic problems involves *ipso facto* considerations of minor details, since in dealing with these problems we are confronted with the issue, Can details be overlooked without at times enmeshing us in serious traits? I may be pardoned, then, for including in this paper details which often assume major consequences if overlooked or neglected.

First, we shall consider the problems of the patient, his signs and symptoms, which will include for the sake of completeness such findings as may be accidentally discovered in the course of a general examination, and of which there is no actual complaint.

Hematuria. The presence of blood in the urine may be either gross or microscopic. In either event it may portend a serious condition. It always requires a search for the cause. Upon an early recognition of the cause and source may depend a life.

Hematuria is present in about 25 per cent. of urogenital diseases. According to Chute, about 64 per cent. of hematurias are attributable to new growths. Renal bleeding, aside from the passage of instruments, constitutes about 40 per cent. of genito-urinary tract hematuria. In this category is placed essential hematuria, which still remains a puzzle. Israel in 1901 contended that in most of his cases of nephralgie hematurique organic changes in the kidney or capsule or abnormal mobility were detected. Hunner discovered ureteral stricture in 13 of his cases. Renal and pelvic tumors exhibit hematuria in 70 per cent. of cases, and perhaps at some time or other in all cases. Carcinoma of this organ bleeds in 68 per cent., hypernephroma in 40 per cent., polycystic kidney 40 per cent., calculi in 40 per cent., tuberculosis in 32 per cent. Other causes are displacements and focal infections.

According to statistics compiled by Thomas, hematuria with its source in the bladder constitutes 50 per cent of urogenital bleeding, and in this list is included: 1, blood dyscrasias; 2, trauma (rupture and wounds); 3, congestion due to varicosities and urinary retention as a result

of cord lesions and obstruction; 4, malformations such as diverticula and regurgitant ureter; 5, calculi; 6, foreign bodies; 7, inflammations, including the infectious fevers, parasites (malarial, filarial), encrusted cystitis, ulcers; 8, tuberculosis; 9, syphilis, and finally 10, tumors, both benign and malignant.

The prostate, seminal vesicles and urethra contribute their share of hematuria. Prostatic hypertrophy, benign and malignant, according to various experiences, bleed in 11 to 50 per cent. of cases. Prostatic calculi may provoke hemorrhage and small growths in the prostatic urethra likewise may bleed. The infections of the urethra, prostate and vesicles, specific or non-specific, and tuberculosis of the latter two organs, of course, serve as etiological factors.

No discussion of hematuria is complete that does not include a warning to the physician consulted by a patient with hematuria not to resort to palliative methods or procrastinating technic. Recently I have seen three cases of carcinoma filling the bladder, who consulted their physicians years ago for relief and no suggestions as to diagnosis were made.

Frequency, Dysuria and Pain. Frequency and dysuria as subjective symptoms of urogenital disease are significant in that the patient will not be satisfied until relieved. This therefore entails a thorough search of the cause, and usually if treatment is not directed at the cause, relief is not acquired. Briefly these two symptoms can be attributed to disturbances of the lower and upper urogenital tract and adnexa.

We are all familiar with the fact that pregnancy, pelvic peritonitis, tumors of pelvic organs, hemorrhoids, etc., may cause either or both the symptoms. Inflammations acute or chronic of urethra, prostate, vesicles and growths along the urethra, in the prostate, vesicles and bladder will of course create these at times distressing symptoms. These conditions are usually thought of and by investigation a diagnosis may be usually successfully determined. But the important thing about frequency and dysuria is that in disease of the kidney and ureter they may be our sole clew and guide as to the underlying cause. Consider that tuberculosis of the kidney, renal and ureteral calculi, renal and ureteral tumors, and ureteral strictures often have as their only or initial symptoms, frequency and dysuria, and we are forcibly concerned with the

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fact that these symptoms bear investigation and should not be merely ameliorated by sedatives or narcotics or diuretics.

About the most troublesome and at least not uncommon complaint of patients is backache or "kidney pain." Urologists have a great deal of respect for this ailment. What has been frequently treated for lumbago with coal tar medications, diuretics, etc., have been often found to be renal tumor, tuberculosis, calculus, pelvic or ureteral tumor or calculus, ureteral strictures. Under the heading of pain, it goes without saying that colicky attacks are investigated generally pretty thoroughly.

We enumerated merely possible causes for renal colics, as stone, passage of tumor tissue, blood clots, movable kidney, ureteral kinks and strictures. And again so-called sciatica pains may in reality be infiltrating carcinoma of the prostate which involves the sacral plexus.

DIAGNOSTIC CONSIDERATIONS

Cystoscopy. In no branch of medicine have more remarkable strides been made since the discovery of the cystoscope by Nitsche. It placed urology on a high plane and the crest is not yet. What the stethoscope is to the internist, so is the cystoscope to the urologist. It has been not only instrumental in saving life by the possibility of early diagnosis of such lesions as carcinoma and tuberculosis of the urogenital tract, but has been of vast importance in eliminating the necessity of many operations for tumor of the bladder, and for stones in the urinary tract, as will be brought out later. It is to our everlasting discredit that so many hopeless cases and fatalities must be directly attributed to the failure to employ this wonderful instrument. Comparisons to the use of the stethoscope are invidious to the internist, who is never without his trusty tool.

In the bladder one can determine first of all bladder tumors and even their type whether they are malignant or benign, pedunculated or sessile and infiltrating. In the pedunculated type or those near the internal urethral orifice one can account for sudden interferences during micturition by the obstructing mass and likewise frequencies and dysurias for the same reason. Bladder stones are of course easily visible and the symptoms traceable to them can then be appropriately treated. Trigonitis, cystitis of all

types with or without encrustations thus can be diagnosed if the clinical symptoms are doubtful. Diverticula of the bladder can be seen and should be looked for in cases of persistent purulent infections, residuals, hematuria, frequency. At times a stone lodged in a diverticulum causes great distress. Vesical neck contractures, strictures and prostatic bars can be seen, and we are coming to realize that these lesions are responsible for a great many cases of retention, frequency and dysuria. Prostatic enlargements are also thus diagnosed, when it can be seen that the smooth circular internal orifice is replaced by irregularities and angularities due to enlarged lateral and median lobes. Ulcers, the interstitial type of Hunner (elusive ulcer), tuberculosis and tubercles can be so recognized.

Kidney conditions reflect their images, detectable by simple cystoscopy; for example, ulcers and tubercles around the orifice are conclusive evidence of disease in the kidney; a projecting growth from the orifice is exceedingly suspicious of a like growth in the pelvis of the kidney. An unusual elevation in the vesical portion of the ureter presages the presence of a stone at this point. And of course purulent or bloody urine may be seen spurting from the ureteral orifice to localize the kidney involved.

Cystoendoscopy visualizes the whole prostatic urethra and enables the detection of pathology in this location. The technic is similar to cystoscopy. It is especially valuable for determining prostatic hypertrophy when the mass does not encroach much on the bladder and to show the bars, the submucous gland enlargements and contractures.

X-Ray. As a diagnostic aid in urology the x-ray is an indispensable adjunct. With proper preliminary preparation and good technic the kidneys can be usually outlined. An enlargement of the kidney enlightens us as to possible new growth, infection or obstruction below the level of the kidney pelvis. Malformations and displacements may be thus detected. An abnormality visualized by means of the x-ray may put one on the right track for further extensive investigations especially in the absence of sufficient symptoms. Regarding calculi we can expect a shadow in about 90 per cent of cases. The phosphate, oxalate and carbonate stones are visible, whereas the urate and uric acid stones can at times be made so.

While on the subject of stone shadows, it is worth while emphasizing the importance of localizing the concretion. Phleboliths and calcified glands, bowel concretions, gall stones should be excluded. This can be readily done by the use of the shadowgraph ureteral catheter which may be halted by a ureteral stone or pass it in the same plane as the stone. A picture showing a stone possibly in the bladder must certainly have a cystoscopy for verification. Stones that do not show on the film may be made visible by the injection of shadowgraph solution through the ureteral catheter, an item that still further reduces the chances of missing concretions by x-ray.

The pyelo-ureterogram, which means a picture of the ureter and pelvis made visible by the injection through a catheter placed low in the ureter of some opaque fluid such as sodium bromide 25 per cent, sodium iodide 15 per cent or 12 per cent sodium mercuric iodide enables us to determine as before mentioned, calculi, kinks and strictures of the ureter, tumors of the kidney and pelvis as evidenced by filling defects of the pelvis, hydroureter and hydronephrosis due to obstructions. We must first of all be acquainted with the normal to recognize the abnormal. We must first be cognizant of the fact that the normal pyelogram exhibits three major calyces, superior, middle and inferior, with various branches; that the papillae are concave and regular. We must also recall in the determination of ureteral strictures the normal peristalsis of the ureters which may easily be confused with strictures at the portion exhibiting the contraction. This has given rise to dissensions from Hunner's opinions. It is difficult to accept the frequency of such findings, and yet more and more of us are falling into line with Hunner. We must remember the three natural narrowings of the ureter, namely the vesical portion, that part that crosses the iliac vessels at the pelvic brim and the pelvi ureteral junction.

Blood Chemistry. We can briefly review the value of blood chemistry as a diagnostic aid. We have come to rely on it more as a method of evaluation of the patient as a surgical risk. Take for example in cases of prostatectomy or nephrectomy for tuberculosis or tumor when the blood registers urea nitrogen over 50 or creatinin over 3 mgm per 100 C. C., we have no right to resort to surgery except in unusual cases since

renal failure is inevitable. Instead in prostatectomy by means to be mentioned a conditioning of the patient is usually successful in enhancing the kidney function and diminishing the risk. In tuberculous kidney or calculous nephritis with high blood nitrogen retention nephrectomy is unwarranted since the remaining kidney is certainly not sufficiently compensating. Blood chemistry is also an aid in determining congenital cystic kidney which is bilateral, especially when this is considered in conjunction with two large kidneys and filling defects in pyelograms. Normal figures are in milligrams per 100 c.c. of blood urea nitrogen 12-15, non-protein 25-35, creatinine 1-2.

Urinalysis. The value of urine examinations is apparent to all. The principal features for diagnosis are the detection of hematuria already elaborated, organisms as the tubercle bacilli and other invaders as colon bacilli in infections, excessive crystals as oxalates, carbonates, phosphates and urates which may predicate calculi, pieces of tumor tissue, and finally functional estimations as the phthalein test. In the latter estimation the kidney function is determined both as to rapidity of action and quality, and quantity of elimination. Particularly do we refer to the appearance time of the dye and the quantity eliminated after a lapse of certain intervals. The technic I shall not describe.

Segregation of the urine by ureteral catheter gives relative functions of the two kidneys. I shall merely interpose a warning as to the proper method of collecting the urine from both sides to eliminate the possibility of error. A large catheter completely blocking the lumen of the ureter should be on one side, and the urine from the opposite kidney should be obtained through the sheath of the cystoscope.

CONSIDERATIONS OF TREATMENT

We now come to some considerations of the treatment of urogenital conditions. Many minor treatments can be instituted by anesthetizing the urethra or bladder locally with procain 1 to 4 per cent. The most pleasing thing however is the generally successful employment of epidural or caudal and sacral anesthesia and when indicated in suprapubic work, field bloc. Under this system the sensitive bladder vanishes. Prostatectomies, suprapubic or perineal, bladder tumor electrocoagulations,

lithotomies, etc., can readily be accomplished. It is the most noteworthy item in the reduction of prostatectomy mortality, since immediately following the operation liquids can be forced, and post-operative shock is greatly minimized. The technic is comparatively simple. The sacral hiatus is located by palpating the sacral cornua. A spinal puncture needle is directed perpendicularly through the filum terminale and after piercing this ligament the needle is directed upward in the sacral canal for a distance of about 4 or 5 cm. The obturator is withdrawn to ascertain the presence of blood or spinal fluid, and if either appears the needle is withdrawn somewhat or the operation postponed. As the dura terminates at the 2d sacral the spinal canal is not entered.

In order to facilitate the procedure the patient is placed on his abdomen with the suprapubic region resting on a sand bag. After the puncture he is placed on his back and twenty minutes allowed to elapse before operating. About 30 to 70 c.c. of 1 per cent procain are usually sufficient. This diffuses about the sacral nerve roots before they emerge from the sacral foramina. Injection of the sacral foramina on each side in addition, insures the anesthesia.

Bladder Conditions. In bladder tumors, benign and malignant, if pedunculated and not too extensive, gratifying results are obtained by electro-coagulation through the operating cystoscope. If the condition has been recognized early and no metastases or extensions are present cure ensues. However, I wish to emphasize the fact that since all bladder papillomata are potentially malignant, subsequent periodic cystoscopies must be done to check on the patient; and in recurrences the procedure is repeated. In extensive involvement a cystotomy must be done. In any event the tumor should always be removed by electro-coagulation.

Small bladder stones can be removed through the cystoscope with the forceps and larger soft stones can be crushed. Sometimes a stone is visible in the vesical portion of the ureter and is here impacted. The proper procedure here is to perform a uretero lithotomy with the cystoscopic scissors through the cystoscope, when the stone either drops into the bladder or can be removed with the cystoscopic forceps. Large stones must necessarily be removed through a cystotomy wound. Under the heading of stone

perhaps should be included cases of encrusted cystitis wherein there is a deposition of phosphates sometimes very extensive over an ulcerated or inflamed bladder mucosa of long standing. This encrustation can be likewise removed through the cystoscope. The only difficulty rests with the recognition of this condition which is at times confused with new growths or indeed may be deposited on new growths.

Bladder ulcers, particularly the elusive ulcer of Hunner, and the tuberculous ulcer are the bane of existence for the afflicted. Hunner's ulcer is usually single, interstitial, involving all the coats of the bladder, and gives rise to great bladder distress out of all proportion to the size of the lesion. According to Hunner it is a focal infection secondary to bad teeth and tonsils, etc. Besides clearing up the atrium of infection it may be necessary to excise the ulcer. In tuberculous ulcers usually secondary to renal tuberculosis or of the lower genital tract, I have recently had the gratifying experience of obtaining relief for vesical tenesmus, frequency and dysuria by fulgurating the ulcers. As a rule relief may be had by the instillation of 15 per cent iodoform emulsion in olive oil. Of course, cure cannot be obtained without proper attention to the kidney tuberculosis.

Ureteral Conditions. Stricture of the ureter is at present a moot point of discussion. Following the leadership and sponsorship of Hunner, we hear of more and more urologists falling into line. Like the Hunner ulcer, it presumably results from infections of the teeth, tonsils, etc., and of great interest the frequency of the trouble in that portion of the ureter which traverses the vesicles and prostate would promote the *a priori* inference of a vesiculitis and prostatitis with concomitant ureteritis. It is as a rule bilateral. The symptoms are one or all of the following: Painful frequent urination, colicky pain, hematuria, etc. Whether or not we accept Hunner's dicta in toto, it is nevertheless true, that in such cases by dilatation of the ureter with the Walther bulbs or Garcean catheters many cases of relief and cure have been obtained.

It is a remarkable tribute to the urological specialty that about three-fourths of cases of ureteral calculi can be removed without operation. Operation is only indicated in cases of large impacted stones with progressive renal function

retrogression, or in cases of manipulatory failure. Given a case of ureteral stone, the ureter is catheterized to the obstruction and cocain or procain deposited in the ureter. It may then be possible to get past the obstruction especially with the aid of a little petrolatum dropped in the ureter. The catheter is permitted to remain in the ureter 24 hours, which procedure greatly relaxes the lumen and then a larger catheter is reinserted for 24 hours. Liquids are forced by mouth. The possibility of recurrences and bilateral involvements perhaps exists in about 10 per cent. of cases. Foci of infections should be cleared up and quantities of distilled water should be taken for some time.

Infections of the ureters and pelvis, such as pyelitis and ureteritis may usually be treated by large fluid intake with either alkanization or acidulation of the urine by the usual means, depending on the flora of bacteria. In persistent cases it may be necessary to perform ureteral catheterization which acts twofold, improving drainage and serving as a means of irrigating the pelvis with 1 per cent. silver nitrate or mercurochrome. At times I have had excellent results with intravenous mercurochrome.

Kidney Conditions. Success in the management of renal and pelvi-renal carcinoma of course depends on the early recognition as previously mentioned. As a rule they are so far advanced as to give a bad prognosis. Congenital cystic kidney which is a bilateral involvement cannot be helped. There may be sufficient good renal tissue to function for a long time.

In renal stones the procedure depends upon the extent of destruction and the involvement of both sides. In the latter case with good kidney function no infection and no symptoms it might be advisable to let it alone and watch the patient. Otherwise, it would be better to remove the stone from the healthier kidney to restore its function as far as possible, then at a later date the poorer kidney would be taken care of. In case of stone in one kidney and ureteral stone on opposite side, the ureteral stone should be cared for first. These rules are of course arbitrary and may have to be modified depending on circumstances, such as colic, infection, etc.

A few words about tuberculosis of the kidney. According to Kroenlein and Israel 30 per cent of all surgical conditions of the kidney rep-

resents tuberculosis. Lorrison Brown has shown that tubercle bacilli may pass through healthy kidneys. Kuster states that 10 per cent of patients dying of tuberculosis exhibit kidney involvement. In 20,000 autopsies Kapsammer found 191 cases of renal tuberculosis, 67 of which were unilateral and 124 bilateral. Of the bilateral cases, the greater proportion showed old processes in one and early lesions in the other, indicative of an early unilateral involvement. Legueu, Albarran, Israel and Casper estimate 15 per cent of chronic or surgical kidneys as bilateral. Braasch estimates that 30 per cent of the cases show pulmonary tuberculosis.

In tuberculosis of the kidney frequency of urination is the initial symptom in 85 per cent of cases. Kidney pain is present in 20 per cent, hematuria in 38 per cent, painful urination, especially terminal, in 48 per cent. The immediate mortality rate of nephrectomy for this condition is about 7-10 per cent, and the late mortality rate is 20 per cent in five years, bilateral 75 per cent in a year. A positive cure is obtained in 60-70 per cent of unilateral cases.

Martin of Battle Creek Sanitarium reports excellent results with the following conservative treatment. He suggests a balanced ration affording maximum nourishment yet imposing minimum work of elimination by the kidneys, by emitting excess animal protein and supplying vegetable proteins. He supplies foods rich in calcium and iron to hasten calcification and clotting in hematuria. He employs with some success heliotherapy, i. e., direct sunlight, or quartz light to tanning before and after operation, and also medical diathermy. It may be advisable to fulgurate the bladder ulcers as previously mentioned.

Prostatic enlargement, a hyperplasia and hypertrophy, may make itself known to the patient in late middle age, with symptoms of frequent urination especially nocturnal with the feeling of incomplete evacuation of the bladder. The symptoms are generally known although not always recognized, and need no discussion here. The chief consideration involved is the proper treatment which includes preoperative, operative and post-operative care. It may as well be understood that one of the chief factors in the lowering of the mortality rate of prostatectomy lies in the preoperative treatment, which means essentially a conditioning of the patient. Elim-

ination through both kidneys and bowels should be enhanced, liquids in large amounts, irrigation of an infected bladder, good nourishing diet, rest in the debilitated individual, moderate exercise in the flabby, etc. Conditioning of the patient includes gradual evacuation of the residual urine; the greater the residual the more gradual the evacuation or as we term it decompression. There are some who still ignore proper decompression and perform the first step of a suprapubic without having first done the preliminary drainage, but enough patients succumb from the first step to impress one with the necessity of actually employing the three step procedure. This means the gradual decompression of the bladder by an indwelling catheter or repeated catheterizations. This process takes about a week. Then the cystotomy is done and this drainage should be maintained until the kidney function is good, as shown by both phthalein and blood chemistry tests, when the third step of enucleation is performed.

Within the past three or four years there seems to be a trend toward perineal prostatectomy. The dogmatic technic of Young unaltered for years has undergone helpful changes, and these are directed toward the preservation of the external sphincter with the view of eliminating the sequel of incontinence. In Geraghty's hands and those who have followed his technic the results have been truly wonderful. It still remains a difficult operation, but the mortality rate has been so lowered and results so splendid that we must all admit that after all the patient has some rights. To the operator the suprapubic route is the safer and easier, to the patient the perineal is preferable, since recovery is surer and easier. I am guided by the following indications: The perineal route in cases of 1. small, fibrous prostates and those with possible cancer, 2. bad or poor surgical risks, 3. old and enfeebled men irrespective of type of hyperplasia or vesical complications; the suprapubic route in 1. good surgical risks in younger men with typically benign and intravesical prostates, 2. cases with large bladder stones or certain types of bladder diverticula provided they are good risks.

In either suprapubic or perineal routes there is an additional important safety factor, namely the employment of caudal anesthesia as described. In the perineal that usually suffices, while in

the suprapubic abdominal bloc is resorted to in addition. The advantages of this type of anesthesia are evident. The effect on the kidneys or heart and anesthetic shock are absent. Fluids, the all-important medicament, can be instituted at once. I am employing this type of anesthesia in all perineal and bladder work, and it grants me ease and time in operative work that is not attainable with general anesthetics.

Post-operatively, aside from the regular care, dilatation by sounds in some cases, particularly those with tight vesicle necks or urethral strictures must be resorted to for variable lengths of time, or relief of symptoms will be temporary.

In conclusion there is a tendency now to utilize the one step suprapubic prostatectomy in favorable cases. This permits a visualization of the field of operation as is attained in the perineal method. Of course, bladder decompression must be employed previously. Hemorrhage can thus be better controlled, although no better than in the perineal type.

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POST TRAUMATIC MENTAL DISORDER

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In dealing with the mental complications of physical injury several related problems are involved:

(a) Those of mental states directly due to trauma of the head which has produced brain pathology.

(b) Abnormal mental states seemingly precipitated by head trauma but probably without definite traumatic pathology, the result of mental rather than physical shock and of endogenous rather than exogenous origin such as dementia praecox, manic-depressive, etc.

(c) Mental states apparently precipitated by trauma of the head but based upon already existing pathology such as general paralysis of the insane, arteriosclerosis, senile change, etc.

(d) And finally, disorders apparently closely associated with trauma of other parts of the body than the head.

The following classification offered by Adolf Meyer¹ some years ago is still a good one:

1. Direct post traumatic delirium:

a. Reaction with infection.

- b. After operations and injuries.
- c. Of slow resolution from coma.
- d. Associated with confabulations.
2. Post traumatic constitution:
 - a. With increased reaction to alcoholic infections, disease etc.
 - b. Vaso-motor neuroses.
 - c. Explosive diathesis.
 - d. Hysteroid or epileptoid.
 - e. Paranoid reactions.
3. Post traumatic mental defects:
 - a. With aphasia.
 - b. Secondary deterioration in connection with epilepsy.
 - c. Terminal deterioration.
4. Where trauma is a mere contributing or participating factor.
5. Where injury does not affect the head, there is no noteworthy infection and the mental disorder is endogenous.

There is little need of dwelling upon the febrile reactions, due to infections. Individuals vary in mental as well as physical reaction to wound infection. Everything depends upon the stability of the patient's nervous system, upon his heredity and habits. Everyone has a breaking point, the only difference being that some break under less strain than others.

Likewise, concerning the delirium following operations or injuries without infection, there is little to say. Here again we have to deal with the personal equation plus the effects of hemorrhage, anesthesia and disturbances of circulation, either local or general. These deliria, generally of short duration, may be disastrous in their results if the patient is not guarded against self injury. The physician or surgeon must keep in mind the fact that the so-called normal individual under physical strain may break mentally when this is least expected.

The mental phenomena immediately following gross injury to the skull may be summed up in the term *unconsciousness*. The further course of the mental disturbances in these cases depends upon the amount of hemorrhage and laceration of brain tissue and upon the extent of the secondary infection which is almost inevitable where the dura is penetrated. The extent of the bony defect is not of great importance so far as life is concerned; in fact, the resultant decompression may be of decided advantage in certain cases.

Cortical tissue itself may be lost in considerable quantities without producing mental disorder. Neurologically speaking, the frontal lobes are silent areas but epilepsy or the traumatic constitution, especially the former, may follow injury in this region when it results in bony defects with adhesions. Berger² believes that injury of the left hemisphere is more apt to present mental symptoms, especially that of the frontal lobes, and Meyer feels that wounds of the vertex are prone to produce bad results. Forster³ refers to Allers as connecting muscle rigidities and loss of initiative with frontal lesions. Basal fractures are prone to cause long-drawn-out delirious episodes. Forster also agrees with Kocher, Breslaner and Reichardt that unconsciousness is associated with injury of the medulla.

It is penetration of the dura with consequent infection that so often spells disaster by way of meningitis and brain abscess. The hospital mortality of penetrating wounds in the British army service in the late war, according to G. Jefferson,⁴ was 37.6 per cent., due always, he states, to infection. *Often this infection is surprisingly slow in producing symptoms*, a fact to be seriously considered when dismissing a head case from observation. The mental picture is usually that of a rapidly developing somnolence, with possibly some delirium, progressive to stupor. The physical signs are those of pressure, among which the disk findings are most important. Spinal puncture is diagnostically important. Upon the other hand, serous meningitis at times gives a papillary edema and increased fluid pressure up to 480 mm. of water even in cases of from six months to a year's standing (M. Berger). Here spinal or cistern puncture may relieve pressure and promote recovery.

The ordinary case of head injury is most apt to be a concussion with or without depressed fracture or with no demonstrable fracture at all. These are the cases, though the percentage is small, that furnish us with the majority of the frankly traumatic insanities. The following case (seen through the courtesy of the State Psychopathic Hospital, Ann Arbor, Michigan) exemplifies the type quite well:

Richard DeF. Admitted Jan. 25, 1922, age 29, married, no history save that he was said to have been injured over the left frontal region January 9 in an

2. Trauma and Psychosis, 1915.

3. Monatschrift f. Psych. u. Neur.—Berlin, Aug. 1919.

4. Brit. Journal, Surgery, Vol. VII.

1. American Journal of Insanity, ix, 351.

automobile accident; was taken to the University Hospital and transferred from there without operation.

Patient, when seen in bed, January 28, 1922, was a well nourished man with some scattering boils over the trunk. There was a ptosis of left eye, probably due to scar of injury. Pupils were equal and somewhat sluggish in reaction. He was rather unsteady upon his feet and presented a well marked Gordon-Oppenheim on left side, no Babinski, interesting in view of the fact that his direct injury was upon the left side of head, thus raising the question of contre coup. He lay quietly in bed without attempting to get up and was untidy in habits; responded to questions but showed little spontaneity. No speech defect. Impressibility proved to be almost nil, did not remember name, date or place after a few minutes. Apparently knew the name of his wife and children and his own age but very little more could be obtained from him.

To illustrate his unclearness, as he lay in bed he suddenly asked about a "picture" on the wall in an adjoining room, then said it had been looking like a brown jug to him for the last four days. The object was a clock about 30 feet away. The examiner gave patient his name and occupation many times but he could not remember it and persisted in calling him "Gauze" and thought he might be a minister. He saw a patient leaving his bed to go to an adjoining room and remarked there were lot of men working in Michigan. He remembered nothing about his accident and evidently worried about nothing; did not even know he had been hurt. His mood at times was facetious.

He watched the adjoining room where there are several beds and other patients, but did not seem to comprehend the nature of what was going on there, remarking "If I saw that young doctor now I would have him mix me up a drink." He is very possibly an alcoholic to judge from occasional references to drinking.

His attempts, under stimulation, to read a paper were interesting. He seemed to see and yet not grasp the meaning of words, would read one or two in a headline and then stop and seem not to comprehend the meaning. He read the figures 1,113,750 first as 1,113,550, then 1,113,150, then 11,000, then 113,750. When asked about the picture of a man said he was not acquainted with him and made no effort to read the name below. Later on he could not be persuaded to read more than a word at a time. To dictation he spelled house, cat, etc. He readily accepted suggestions concerning the nature of his activities in the hospital, but did not confabulate spontaneously.

All in all, the syndrome would seem to be one of the post traumatic clouding of consciousness with something approaching a Korsakoff syndrome, the latter possibly conditioned in part at least by chronic alcoholism, upon the extent of which the prognosis would be somewhat dependent. This patient in the course of a few weeks recovered sufficiently to go home.

The following interesting case illustrates very well the later course of a similar case though too little is known about the more acute stage:

Wm. S. Admitted June 3, 1920, 49 years of age, white, laborer, married. Family history negative. Moderate user of alcohol in the past.

April 1, 1920, he was struck upon the head by the open door of a passing truck and was unconscious at the Cook County Hospital for six (?) days with skull fracture. Two weeks later right eye became inflamed and later mastoiditis developed. Remained in hospital seven weeks and became expansive—thought himself an officer, doctor, etc., had much money, government was after him, etc. Physical examination when admitted showed patient to be poorly nourished, right eye enucleated "on account of inflammation," scar of mastoid operation. Pupils were negative—suggestion of right facial paralysis. He had been at home for two weeks before commitment. Mastoid operation at Eye & Ear Infirmary shortly before admission. Was not irritable nor forgetful.

When examined, June 17, he told a long story about an air plane trip which he had taken several weeks before he was hurt. The manner of telling suggested confabulation. "A gentleman named L. came to me on Wabash Avenue, took me down to Grant Park two or three weeks before I was hurt about four months ago. (Patient was injured about two months before his admission.) I had known this man for five years. I had met him there on the street and we talked about how we were getting along and the times in general. He asked me where I was working. He finally asked me if I had nerve enough to go up in the machine with him. He placed me in the machine and placed the two safety belts around me and away we went. We went over the Field Museum and out over the lake and he leaped up pretty well and then came back down again. When we landed he said he had to catch a train to go away. I walked as far as Randolph and Michigan with him and bid him goodbye. I then caught the Indiana car to go home and that is the last time I saw him."

He answered questions freely. Memory seemed to be good. Did not recall how he was hurt, but remembered apparently up to the moment it occurred. Said he came to about a week later. Was in the County Hospital 7 weeks and 4 days—approximately correct—though he probably fused this experience to some extent with that in the Eye and Ear Infirmary. He felt all right at this time—*no headaches, dizziness*. His stories, when repeated from time to time, remained practically the same. At staff meeting he was quiet and orderly, claimed that a friend was going to buy a farm near the city so that he might work on it. This farm would be about 250 acres. His friend was a special policeman in a bank. There was an entire failure to connect the sum involved in such a purchase with the friend's ability to pay.

It was remarked that the patient seemed to feel very well and was anxious at times to tell how good he felt. He seemed not to realize that the sight of

his right eye had been destroyed, certainly was not at all depressed by the fact. His wife was not anxious to remove him and a friend who came to visit him seemed to think that he was not quite himself.

The remainder of the history is brief. The patient was paroled to his wife about a month later and returned after two months (Sept. 20, 1920) in poor condition with a black eye which he stated was caused by being struck by a negro. He died three weeks later, Oct. 13, 1920, quite suddenly following a convulsion. A complete physical examination was not made at the time of his re-admission, which is most unfortunate. Spinal fluid was negative. The findings of the coroner's physician were "brownish degenerated areas on surface of temporal and frontal lobes of brain, showing old hemorrhage and pus over the right parietal region, in the fourth ventricle, later ventricle and over the base."

This patient undoubtedly had a delirious upset following his head injury and became clear without correcting his dream experience of the airplane, the farm, etc., thus indicating decidedly weakened judgment, illustrated very well, too, by his persistence in the idea of the 250-acre farm near Chicago to be given him by his policeman friend. When told this land would cost from \$600 to \$800 an acre he made no comment, seeming not at all to recognize the absurdity of the situation. Of particular interest is the fact that he did not complain of the head symptoms so common in these cases, especially in view of the post-mortem findings and the negative spinal fluid. The case also illustrates extremely well the latency of symptoms during the development of extensive pathology.

There is nothing pathognomonic in the symptomatology of many of these patients. Everything depends upon the history of injury or direct evidence of it and even then we can be deceived inasmuch as the head may present evidences of a trauma sustained subsequent to the development of the psychosis. However, in any large group of bona fide traumatic case histories the following items will stand out more or less prominently:

1. A history of head trauma.
2. A period of unconsciousness or semiconsciousness (though Berger found in 53 cases that 15 per cent. did not give such a history).
3. Followed by more or less delirium, confusion and irrelevant speech.
4. Amnesia and a tendency to fill in memory gaps with confabulations—Korsakoff's syndrome.
5. Periodic and rather sudden variations of mood. Recurrent confusion with fear reaction and violence.

6. Possibly epileptiform seizures.

7. Complaints of head sensations, such as headaches, dizziness, foreign body.

8. Neurasthenic, fatigability and hypochondria.

Accompanying these mental symptoms, none of which are pathognomonic in themselves, there may be some difference in the size and reaction of the pupils, deafness, Rombergism, speech defect, altered reflexes, etc. Forster⁵ and Berger both lay stress upon increased spinal fluid pressure. The benzedine test for occult blood may be positive long after the accident.⁶ Such physical signs naturally assist greatly in establishing a diagnosis, especially in the presence of definite evidence of old head injury or history to this effect.

After the above statement of signs and symptoms, the following case of Abe. L. is cited with some hesitation because the picture of a psychosis apparently proceeding directly out of a head injury so resembles dementia praecox as to have been thus diagnosed three times in two state hospitals in the face of the traumatic history. Hebephrenic dementia praecox, however, remits but rarely and usually with some very evident defect. This patient after psychosis lasting four years is at work and seemingly well:

A. L. Admitted to Elgin State Hospital, November 2, 1917, a Russian Jew, family history negative, age 29, married, automobile painter. July, 1916, while riding a bicycle was struck by an automobile, receiving an injury of the head. He was taken to a hospital where he recognized no one and remained there three weeks, *unconscious two weeks* (?). After that was not in normal mental health. He worked very little—"got things mixed up in his head" and "they could not keep him any place." Shortly before admission he thought he recognized other women as his wife and would try to follow women passing with baby carriages. He feared someone was going to kill him because he did so much work in the shop; was very talkative and walked about the house a great deal; never violent, memory good. Thought people were watching him.

At the time of the first state hospital examination physical examination was negative; in the mental examination he cooperated but was uninterested. Did not respond well to questions. No spontaneous stream. Said he would like to just sit in his room if the other patients would leave him alone. *He denied hallucinosis*. Orientation was questionable but thought the physician might be a doctor. General information was difficult to ascertain. Thought nothing was the

5. E. Forster: *Monatschrift f. Psych. u. Neur.*, Berlin, Aug. 1919.

6. G. B. Hassin, verbal communication.

matter with him, that he ought to go out and get a job, but seemed little interested in his wife or children. Diagnosis hebephrenic dementia praecox.

He was re-presented June 20, 1918, with a history of untidiness, destructiveness, impulsiveness, violence and restiveness. Was constantly talking to himself, stupid and indifferent, lying in bed with his head covered and on account of the entire picture and slow progressing deterioration was again diagnosed as dementia praecox.

He was transferred to the Chicago State Hospital August, 1918, where his condition was apparently unchanged. He improved remarkably during the year 1919 to 1920, because quiet and agreeable and took charge of a linen room. He gave a good account of himself when questioned and seemed to remember all the principle facts of his life history. The diagnosis of dementia praecox was, however, again confirmed.

He was removed from the hospital the latter part of 1919, but was returned shortly after because he could not get along; was said to be quite disconnected in his speech and restless. August, 1920, he escaped, returned by himself shortly afterward, was paroled and began to work, though talk was somewhat rambling. After this he apparently got along well, though he complained some of headache. Discharged in November, condition improved. Was doing well in some factory. The examining physician stated that his reactions seemed to be superficial and he showed some "mental slowing."

The case was investigated January 10, 1922, by social service worker, who found the patient out and his wife in a hospital following delivery. He was said to be working and was well spoken of by the neighbors. Recovery is, at least socially, complete.

In general, the course of this case was that of dementia praecox, but the onset with unconsciousness following head injury, apparent absence of hallucinosis and a final symptomatic recovery are unusual features which perhaps justify the diagnosis of traumatic insanity; remembering, however, that dementia praecox itself may follow directly upon any kind of trauma, of which more later.

Next to the more or less acute traumatic psychoses the so-called traumatic constitution is most interesting. Here the mental changes are often subtle and most important for this very reason. The various types range by infinite gradations from an increased intolerance for alcohol, sun and infection, along with but slight change in personality, to the marked neuroses and paranoid developments. To this indefinite group belong those individuals who perhaps deserve our greatest pity in that the change precipitated by their accident may evidence itself merely as an exaggeration of unpleasant traits they have long possessed in the development of unusual, immoral

behavior, in a loss of ambition and ability to get along, in irritating hypochondria or in behavior that suggests malingering. And, too, there must often arise a question as to the validity of assuming *post hoc propter hoc*. Perhaps the relationship of the accident and the change of personality is only coincidental after all, vide the following case:

Wm. C. Age 15, was admitted to the Elgin State Hospital December 30, 1921. Mother stated patient was bright in school, passed his examinations without difficulty, conduct good, never stole. Was struck by an auto December 13, 1920, and was unconscious for five weeks. When he regained consciousness "he could not remember." For the first two days and nights following injury he had one convulsion after the other and suffered greatly. Decompression operation was performed the day he was injured. Lost nearly a year's schooling on account of illness. School marks since accident said to be of passing grade. Began to steal after accident, took jewelry as well as money. This would happen sometimes two or three days a week then again not for several weeks. He would deny up and down that he had taken it while he had the money in his pocket and finally would confess. When asked why he stole would remark, "Oh, just because I wanted to." His memory became defective and he masturbated badly. Some days he would talk continually. While he was in the hospital it required hypodermics to keep him quiet.

The examination at time of admission showed a bony defect in the left frontal parietal region about 2 by 2½ cm. Pupils were equal but patient claimed vision is not so good as before accident. Test chart said to read 20-30 R. and 20-40 L., findings which are somewhat doubtful though the disks were perhaps a trifle paler than normal. There was some tremor of the fingers, otherwise examination was negative. Patient is still restless and talkative but well behaved, tires readily and is egocentric.

History in this case is very meagre, but the question arises as to whether accident brought to the surface a psychopathic tendency or was this merely coincidental? The boy is only 15 years old and psychopathy is very apt to first claim attention in adolescence.

The case of Charles B. is complement to the above and illustrates very nicely the development of the explosive diathesis in a boy who had at one time been in a correctional school, though possibly through no grave fault of his own, since he had no one to look after him save his grandparents. By coincidence, the physician who examined him upon admission to the state hospital had known him as a well-behaved boy in this school, a few years prior to the accident.

Charles B. Admitted to Chicago State Hospital, November 17, 1921, age 17, single, a laborer. Patient

was in an orphans' home several times for running away from his grandparents' home. Was in correctional school where he behaved himself well. Has a sister who is said to be "no good." A letter recently received states he had been a hard working farm hand for three or four years preceding trip west, on his return from which he was struck by a train which killed his brother who was with him. He became violent at the Minneapolis General hospital. Psychopathic hospital diagnosis, dementia praecox, at Minneapolis, dementia praecox or traumatic psychosis.

Physical examination upon admission showed cast upon fractured right leg and scar over left frontal parietal region, otherwise negative.

Patient became sarcastic and stubborn soon after admission. Explained in detail the accident, when he was hurt and his brother killed; was unconscious he thinks two days. Since the accident he has always felt a bit dizzy. Was returned to Chicago by the authorities of St. Paul and sent to the County Hospital. He soon got into trouble there for entering women's ward, which he states was because he had become lost while out upon the smoking porch. At the psychopathic the doctor asked him if he had ever seen a woman floating in the air or a cat hanging from a tree and for a joke he told that he had. This account was well given, but he denied the reports of violence. There was no evidence of hallucinosis or actual delusions. Case was left undiagnosed but the general impression of the medical staff seemed to be that he was of a psychopathic makeup.

In the hospital he had several attacks of explosive excitement, in which he was not violent but apparently on the verge of it. His general attitude was one of sullen martyrdom. Later he attempted to get out of a window in spite of a fracture from which the cast had recently been removed.

This boy denied his explosions and adopts a sullen attitude of injured innocence when questioned concerning them. Was his amnesia real? [And, for that matter, what do we understand by a "real" amnesia?] Or was he developing psychic epilepsy which might be inferred from his transitory periods of excitement and confusion with amnesia?

Still another case illustrates very well a combination of the explosive and paranoid types:

John P. Admitted November 11, 1919, Austrian, age 27, single, carpenter, family history negative, occasional drinker, well until accident, March, 1919, when a heavy weight fell upon his head. He became unconscious and was removed to hospital where he was operated on for depressed fracture.

The doctor who had charge of him said he made an uneventful recovery. A few small pieces of bone, however, sloughed out. Four months prior to admission several doctors testified before the industrial board that he was able to resume work. In fact, they thought he would be benefited by occupation. He endeavored at about this time to cash his pay check in a

downtown bank and made some disturbances there, but was allowed to go home. A little later he went to the doctor's office for disability certificate and when this was refused attempted to assault him. He was sent to the Bridewell Hospital and later to the county jail. At the time of admission was said to be under \$5,000 bonds, but the judge had recommended that he be sent to the Psychopathic Hospital.

Patient, when admitted, presented a depression over the vertex of the skull—vision in left eye poor; pupils were equal and reacted but were irregular. Tongue deviated to the right and was tremulous. There was some insteadness of station and he limped with the left leg, but there was no Babinski.

He told his story about as contained in the above account, but said he did not remember the attack upon the doctor though he remembered going to his office. He recalled being placed under bonds and being taken to the Bridewell. Everyone was against him, two doctors, two insurance men and the police, even his lawyer. The only friend who was interested in him was shortly after shot and killed but the patient considered this merely a coincidence.

He had been troubled by severe headaches, especially while in the sun; would become dizzy and at times would feel as if something were loose in his head.

He was fully aware that his case was up for adjustment before the industrial commission. He was critical and fault-finding upon the ward, thought he would never get well if he did not get away soon, that he must be taken to a private hospital and that his stomach was out of order. General information poor, also impressibility. No hallucinations, nor real delusions. Diagnosis—traumatic constitution with a question as to whether the limp was the result of organic lesion or not. Patient was finally paroled, condition unchanged, January 15, 1920.

Paranoid developments are not an illogical development in a burdened individual who, as a result of head injury, becomes less able to carry on his work and in consequence seeks explanation for this failure outside of himself, i. e.:

Wm. N. Admitted October 22, 1920, age 53, married, carpenter; a great aunt said to have been insane. Patient is an abstract specialist. No epilepsy in the family. Twice married, divorced first wife "because she was hard to get along with." Drank quite freely years ago, but little for the last five or six years. Wife stated that about eight months after he was slugged in a race riot he became irritable, complained of severe headaches night and day. He improved at times, but quit steady work some six months prior to admission; worked half days for a time; developed a fear reaction and stopped work altogether. Two weeks before admission he was struck by an automobile; was unconscious for 10 or 15 minutes, then developed ideas people wanted to come into his home to kill him, was confused at times, suffered insomnia and was finally committed.

Physical examination upon admission was negative

save for the left pupil which was said to be slightly larger than the right, both reacted. Wassermann was negative on blood and spinal fluid.

Patient himself gave a history of first head injury about two years ago and of "slipping," as he called it, during the last year and a half; could not work as he formerly had and finally had to stop. When asked what he considered the cause of his trouble he became agitated, cried, asked if it was necessary to go into details; was not sure as to whether he was right or not but thought his wife had taken a liking to a German; that she was in collusion with a doctor who was interested in her; and had been working in an office with many men which had made him suspicious. Ten days before admission he was struck by something that rendered him unconscious and awakened in a hospital (second injury). He was told he was struck by an auto but thought he was followed and slugged. His wife possibly may have had something to do with it. Perhaps she put him in the hospital to get a divorce. He would sift things to the bottom when he got out. Diagnosis—Traumatic constitution. He was paroled December 23, 1920, by his wife and taken to a sanitarium.

Patient was reported February 23, 1922, to be in good health and at work in a responsible position.

Under this same general heading of the traumatic constitution the neuroses associated with comparatively trivial physical injury would naturally be discussed were it not for the fact that during the late war and subsequently they have, together with those not connected with injury, acquired such importance and have accumulated such a literature as to forbid their treatment in a limited space. The subject of shell shock may be dismissed here with the statement that in general it represents the individual's retreat from an unbearable situation.

Mental defect, or dementia, is naturally the end state of such traumatic cases as do not die or recover. Dementia results either directly out of the primary lesions or from subsequent degenerative processes or develops as the result of epilepsy, alcoholism, arterio-sclerosis, senility, etc. The picture is that of an organic dementia with loss of efficiency, weakened memory, loss of impressibility, poor grasp of the situation, more or less recessive behavior and possibly episodes of excitement, etc. Upon the whole it is a difficult state to differentiate from old dementia praecox, but the diagnostic points already referred to may be of assistance.

Convulsive seizures may occur at any time following a head injury, but *true epilepsy, in the sense of an organized habit of energy discharge,*

usually requires time for development, often many years, and may then arise directly or indirectly out of heredity, alcoholism, arterio-sclerosis, etc. Autopsy sometimes reveals bony spurs at the site of old hemorrhage or adhesions of the cortex to the scalp through a bony defect, cortical softenings, pachymeningitis, etc. Bergerhans, Pfeifer and Perity⁷ in 1918 reported from 12 per cent. to 33 per cent. of epilepsy in their head cases in the German army hospital service. Upon the other hand, Percy Sargent,⁸ in emphasizing the dangers attendant upon adhesions of cortex to scalp, states that in a survey of 25,000 head cases made in England by a board of pensions in 1919 but 800 cases (only 4½ per cent.) were found to be epileptic. In civil cases great care must, of course, be taken to make sure that a fit was not the cause of the trauma rather than the other way about. Thus the late Dr. Moyer in a personal communication to the writer stated that out of a considerable number of apparent cases of traumatic epilepsy carefully studied he found many where there could be little question but that the first fit was independent of any trauma. In such cases everything depends upon a most careful case history of family, patient and accident.

The part played by head injury in the precipitation of organic mental disorder at times affords opportunity for much argument.

Mary D., age 61, married, U. S., committed February 19, 1921. Family history apparently negative. Patient was said to have been well behaved by her family and her neighbors until six weeks prior to admission when she was struck by a taxi, was taken to a hospital and remained unconscious for about two weeks. Relatives stated that she had a skull fracture but the attending physician stated that he could discover none. During the latter part of her stay in the hospital she had to be restrained because she would not stay in bed. She would change the subject while talking, misidentified her children and "acted like a child."

Physician's examination showed an old lady, blood pressure 175-130, pupils normal, tremors of tongue, fingers, eyelids.

When examined she was quite restless, was not oriented, behaved as if she were in her own home, could not find her way about, had no recollection of the accident, could not give the day or month and misidentified persons; could not do arithmetic, retention poor. She was diagnosed at the Psychopathic Hospital as senile dementia, but in view of the accident, and neighbors having said she was apparently

⁷ Allge: Zeitschrift f. Psych., lxxiv, p. 610.
⁸ Brain, xlv, Part III.

normal prior to it, she was diagnosed at the state hospital as traumatic dementia.

The patient was removed from the hospital and died at home shortly after. The coroner's physician found no evidence of hemorrhage, fracture or injury to brain. Blood vessels were engorged but no gross pathology. Heart was enlarged. Arterio-sclerosis marked. Large white kidneys. The verdict read "Deceased came to her death from chronic heart and kidney disease complicated by dementia."

Here it would seem that the accident merely precipitated a senile dementia, but if the facts were as represented, the trauma might even so be held accountable for the patient's mental illness and subsequent death since without it senile dementia might not have appeared for some time.

The following case presents another angle for consideration, although there was fortunately no question of liability:

Joseph C. Admitted March 31, 1921, 53 years old, Irish. Father drank heavily. One brother in Elgin. Patient had been a bar keeper and steady drinker for many years. Drank only occasionally since saloons closed. A few months prior to admission he slipped upon the ice and fell, was unconscious for an hour and dazed for several hours after. Some weeks later he became nervous, saw people looking in the windows, wanted to lock the doors and draw the window shades, seemed stupid and answered questions poorly; became forgetful, did not recognize his own children, diagnosed at the Psychopathic Hospital as chronic alcoholic with deterioration.

Physical examination was negative, save for coarse tremors of fingers; blood pressure 120, spinal fluid negative. When examined patient was quiet and co-operative, denied drinking to excess. He remembered slipping on the ice and being assisted into the house, but did not know how long it was before he came to himself; went to the County hospital on account of pain in the head; seemed stupid and not clear to remember what was done for him in the State hospital. Denied delusions or hallucinations. Did not seem to remember his paranoid ideas. General information quite poor.

Here again we have an instance in which the trauma served merely to intensify a mental state already existent, although the relatives did not realize it, their attention being called to it only when he began grossly to misbehave following the accident.

And finally there are the great multitude of cases where mental change seems to follow so closely upon an injury not affecting the head that there would seem to be some degree of causal relationship. Unfortunately actual cases cannot be cited because they have been lost among other hospital records. However, a typical one would read something as follows:

John Doe, age 30-35, probably a foreigner, a laborer in the steel mills, we will say, and married, sustains a very moderate crushing injury of the hand and foot, possibly with loss of a part of a finger or toe, involving repeated dressings. He receives some sick pay and loaf about for several weeks, drinks more than usual and broods over his accident, wondering whether he will ever be as good a man again as he was before, etc. When the doctor finally tells him he can go to work he does so half heartedly and lays off a good deal. Finally he stops work altogether and begins to develop some loosely knit paranoid ideas, together with a general let down of interest in everything outside himself. Finally he becomes excitable and so irritable, even violent at times, that he must be committed.

The further course of the case is that of a mild dementia praecox. What is the answer? Obviously not that trauma of the foot or hand causes dementia praecox. Very possibly the patient has an insane brother or sister in the old country. Perhaps the change was already incubating and a slightly lowered resistance due to the shock of the accident and the fear of permanent disability was enough to bring the affair to a crisis in an already burdened individual.

CONCLUSIONS

1. The pathology of mental disorders following physical trauma varies from apparently nothing at all, through microscopic changes to gross hemorrhages, loss of brain and bony tissue and massive infection. The latter are too familiar, the former too debatable ground for discussion here.

2. There are no pathognomonic symptoms. "*There is no psychotic entity which can be diagnosed as a traumatic psychosis without history of a definite relation of the mental disturbance to preceding trauma of the head.*" Any form of mental disturbance may appear after head trauma. A list of somewhat classical finding in fairly definite cases has been given.

3. The diagnosis of malingering depends upon examination and extended observation. It is comparatively rare and probably always occurs in a low grade individual because it is a primitive type of reaction. Neurotic symptoms in one who is not malingering may improve or disappear after compensation is obtained. It is common for an invalid to make the most of his symptom. Unconscious simulation is not malingering. It is a neurosis.

4. Amnesia occurs after head accidents, after the perpetration of criminal acts, in epilepsy, hysteria, etc. It must be thoughtfully evaluated whenever it occurs as a symptom, i. e., is the

memory gap due to traumatic unconsciousness or to an imperative need to forget.⁹

5. *Trauma not involving the head may precipitate a disorder which is not a traumatic insanity but some form of endogenous psychosis.*

6. Prognosis depends to a considerable extent upon the presence or absence of features pointing to the ordinary psychoses. Paresis must be ruled out in adults, dementia praecox in the young, arterio-sclerosis in the elderly, senile dementia in the aged and brain tumor in all. Unconsciousness followed by delirium and confusion rather points to a frankly traumatic affair and has a more favorable prognosis.

7. An organic condition, as Southard so aptly expresses it, may become so wrapped about with a neurosis as to make diagnosis, prognosis and treatment all very difficult.

8. Liability, if in question, can only be determined after a most careful survey of the patient's family history, personal history and characteristics prior to the accident, together with all the medical facts obtainable.

9. Vide, "Hysterical Amnesia Following Physical Injury," Charles F. Read, *Mental and Nervous Diseases*, Vol. 58, No. 6, Dec. 1923.

TREATMENT OF BENIGN UTERINE HEMORRHAGE WITH RADIUM*

AN ANALYSIS OF 138 CASES

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In August, 1923, Dr. W. C. Danforth reported on the radium treatment of one hundred patients having benign uterine bleeding. The large majority of these were cared for on the gynecological and surgical services of the Evanston Hospital by Dr. W. C. Danforth, and Dr. W. R. Parkes. The hospital records from the date of this last report to the present time contain 38 additional cases.

This report is made both for comparison and to supplement the report by Dr. Danforth, therefore, from time to time with his permission, I have made use of parts of his report.

The results of treatment in the 38 cases were most satisfactory. Of this number there were 35 cures, 1 failure, and 2 cases in which, because of relatively recent treatment there still remains a possible chance of failure. Therefore, on the

basis of 36 cases treated we have a cure in 97.1 per cent.

The results just mentioned were obtainable because: First, the cases were handled for the most part by men who are *well versed* in gynecology or surgery. In Dr. Danforth's report there were 2 cases which confirm the above opinion.

Second, the cases were properly selected as being suited for this type of treatment. Radium therapy should never be used in cases of acute or chronic pelvic infection, because it is a known fact that streptococci are harbored for a long period of time in the uterus and adnexia and the effect of radium may light up a latent infection, with disastrous results. In Dr. Danforth's report an example of this was noted:

We have recently had an opportunity of examining a uterus which had received 1200 milligram hours of radium. Diagnostic curettage was carried out prior to the introduction of the radium and the microscopic examination of the material obtained revealed adenocarcinoma of the body of the uterus, for which hysterectomy was done about one week after the irradiation. Grossly the endometrium and uterine musculature immediately underlining it was reduced to a gray sloughing mass, completely necrotic. The microscope showed necrosis of these layers with marked round cell infiltration of the uterine wall underlying the stratum of necrosis. Clearly, a trauma of this severity cannot safely be applied where infection may remain.

Third, all fibroid growths which have become greater in size than a 3½ or 4 months pregnancy were excluded from this form of radium therapy, because when the growth has reached such a size there is danger of a beginning degenerative process and in such cases extirpation of the growth should be resorted to.

Following the same division of cases as in Dr. Danforth's report we have divided our cases as follows: Under 20, from 20 to 30, from 30 to 40, from 40 to 50, and over 50 years.

To date in our total of 138 cases we have two under the age of 20, one 15 and one 16 years of age; both had adolescent myopathic bleeding. One was given 250 milligram hours, and the other 300 milligram hours. Diagnostic curettage was not done in either case because in such cases it is not necessary and if done would probably be harmful. In the patient of 15 years there was an amenorrhea for 2 months and a normal menstruation thereafter. In the 16-year-old case there was a prompt diminution in the

*From the Department of Gynecology and Obstetrics, Evanston Hospital, Evanston, Ill.

menstrual flow and after 3 months, normal menstruation. Extreme care in this class of patients is necessary, in that too much radium or too long an insertion of it may cause permanent sterilization.

In the present series there were only two cases between the ages of 20 and 30. One 23 years with adolescent bleeding for which 50 mg. were inserted for four hours, the other, 30 years, with myopathic hemorrhage, was treated by a diagnostic curettage followed by the insertion of 50 bg. of radium for 24 hours, with good results.

Between the ages of 30 and 40 we had 12 cases variously treated for chronic hyperplastic endometritis with bleeding, myopathic hemorrhage bleeding submucous fibroid, and in the previous report in which we have the largest number of cases, the condition for which treated is almost invariably that of climacteric hemorrhage with the exception of a few uterine fibroid (bleeding).

We treated no cases over 50 years of age in the present report.

The dosage of radium should be governed by the age of the patient as well as by the indication for its use. The dosage for patients under 25 years, the period in which we have to deal with adolescent bleeding, should never be over 250 miligram hours, preferably less, and the dosage to be repeated if necessary. Following such treatment there is generally an amenorrhea from 1 to 4 months, followed by a normal menstruation.

In the period from 30 to 40 in the treatment of fibroid we must use special care in dosage in order that an early menopause may be avoided; 25 mg. for 24 hours is usually sufficient. As in the previous and following decade diagnostic curettage should precede the insertion of the radium. In this period we also deal with myopathic hemorrhage, the usual dosage being 50 mg. of radium for 24 hours.

In 1919 I treated a Mrs. W., age 39, for a severe menorrhagia of 6 months standing. During the 6 months preceding treatment there had been only one week between each period. The patient was anemic with a hemoglobin of 64. A diagnostic curettage followed a careful bimanual examination under anesthesia with no positive information from either examination. Fifty mg. of radium were inserted for 24 hours, with a satisfactory but a rather unusual result. The

flowing ceased within a month and for the following 11 months there was a complete amenorrhea. Following this period of amenorrhea the ovarian function returned and the patient has had normal menstruation to the present time. This is the longest period of amenorrhea followed by a normal menstruation that has come to my attention.

In the decade from 40 to 50 this report agrees with the previous one in that it contains the largest group of cases. In this group the permanent relief from hemorrhage is our sole and only task. Uncomplicated by fear of inducing early menopause or prevention of a possible pregnancy, we give the full dosage of 1,000 to 1,200 milligram hours. Our results to date during this decade have convinced us that radium therapy for hemorrhage of myopathic origin and small bleeding fibroids is far superior to that of surgical procedure.

One case of interest from this group is that of a Mrs. C., age 45, operated on 7 years ago by Dr. Dwight Clark for carcinoma of the breast. The patient returned for the treatment of vaginal bleeding of several weeks standing. Bimanual examination revealed a number of small palpable masses on the body of the uterus. Some form of malignancy, of course was suspected. Diagnostic curettage gave no positive information. Fifty mg. of radium were inserted for 24 hours, the hemorrhage gradually diminished and in a few weeks the bleeding ceased. The patient's condition at the present time is most satisfactory.

In this report we have no cases over 50 years, but in the previous one Dr. Danforth states that: "We have also treated 14 women of over 50 years. In these we have had uniformly good results with dosages similar to those used in the previous group."

In the 138 cases of the two reports we had 9 failures. Of these 5 were relieved by a second application and 4 required operation. Two of the series were treated so recently that we are unable to give a final report.

The usual surgical technic is used in preparing a patient for radium therapy. A diagnostic curettage is performed and the specimen is sent to the laboratory for a careful microscopic examination.

Following the curettment a thorough application of iodine to the uterine canal is made, and

the radium capsule is introduced into the fundus. In the majority of cases 50 mg. are screened with 1 m.m. of brass, with a layer of pure gum rubber, wrapped about the capsule. If the affected area is large, i. e., in fibroids simulating pregnancy of 3 months, and if the dose is doubled it is best to insert 2 cylinders in tandem with the same screening, as used with a single capsule—duration of treatment and resultant nausea are thus reduced. The radium is often used with an additional screening of silver. Gauze is packed anteriorly and posteriorly to the cervical canal in order to protect the bladder and rectum. Formerly we used heavy silk attached to the radium capsule for use in extracting it. On two occasions it became necessary to take the patient to the operating room and extract the radium from the fundus with dressing forceps because the silk became unfastened when an attempt was made to withdraw the radium. We are now using a fine pliable wire, which is proving satisfactory.

The nausea which often is present during the time the radium is in the uterus disappears within 48 hours after its removal.

Following the treatment the bleeding may be more profuse, especially if a menstrual period follows immediately upon the treatment, otherwise, there is only a scanty flow and that usually ceases after a month. Another annoying feature is a watery discharge which may continue for several weeks. This discharge is the local reaction to the radium and is self-terminating. A few patients have complained of a profuse and persistent leucorrhea. This, too, will subside following the local effect of the radium.

In those cases in which we use the full dosage of 1,200 milligram hours, at the beginning of the climacteric, the menopause symptoms have been similar to those of a normal mild menopause.

Summarizing the two series of cases, eliminating those which failed and those which had a second or third treatment, 95 per cent of the treatments were successful. Both series have been free from mortality and morbidity following treatment.

Because radium therapy has been used with such satisfactory results in the type of cases mentioned above and is accompanied by so little trouble and danger to the patient, we are con-

vinced that such a procedure has a very important place in medicine.

There are those who are of the opinion that hysterectomy is preferable in certain types of the cases included in our list. In spite of the fact that the mortality in hysterectomy in expert hands varies between 1.5 per cent and 2 per cent, Selheim favors this procedure in some instances. He mentions three detrimental effects of radium to support his theory, namely: 1. A sudden destruction of ovarian function even at the beginning of the climacteric does not occur without leaving a trace, it often causes true signs of loss of function not seen in extirpation of the uterus. 2. There is a local trophic disturbance of the uterus often manifested by metrophy accompanied by excessive secretions. 3. A pronounced injury of the blood which is not compensated even ten weeks after the use of radium. Although all of the cases reported by Selheim gave a history of long standing hemorrhage, the blood picture of those in which extirpation of the uterus was performed returned to normal after ten weeks, whereas of those cases which were treated by radium none had returned to normal at the end of this period; there still remained a decided increase in both leucocytes and erythrocytes and blood platelets.

CONCLUSIONS

1. In the treatment of benign uterine hemorrhages radium therapy has its greatest usefulness in women past the age of 40. In younger women small dosages of radium are sometimes used. The use of radium in adolescent bleeding is not as popular as at first; its use in this type of bleeding is confined mostly to the cases that have not responded to glandular therapy.

2. Radium therapy is contraindicated in the presence of pelvic infection past or present.

3. Only fibroids smaller than those simulating a three or four months pregnancy should be treated with radium. Large fibroids and those obstructing the cervical canal should be treated surgically.

THE WISE MAN

The man whose only hold on his customers is that his prices are a shade lower than his competitors has a mighty insecure business. The wise man makes his service superior, and then the price element drops down where it belongs.—From Forbes.

THE CORRECT DEVELOPMENT OF THE GROWING FEET TO INSURE HEALTH

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The feet are the most faithful servants of our body, and as a rule are treated the worst of all. They have to carry us through life, in millions of steps, years of standing, and with little appreciation of these duties, we squeeze them into more or less irrational shoes, and conduct them into an improper position. The wonderful machine of the foot is one-half unused, and the one-half that is used is employed in an inappropriate manner. The human foot is an active organ of locomotion, and not a passive support, on which to stand and walk.

The foot is a propelling machine. Therefore, the evil effect of faulty foot-wear can best be understood by a comparison of the shoe-bound foot of today, with the ideal, represented by the famous foot, in the "Hermes of Praxiteles." In this, the inner edge is straight, the outer edge is slightly curved, the little toe is neither crumpled nor twisted, and lies parallel to its fellows.

Compression of the foot in front is the most common deformity—curling downward and inward of the little toe from side pressure made by a too narrow shoe. The deformities which are the result of crowding the foot into the shoe, have been universally represented in art since the sixth century, B.C., as seen in the Gladiator, and other famous statues. Investigations of large collections of shoes, such as the one at the Chicago "World's Fair," or the one at the Musee-Cluny in Paris, demonstrates the fact that deformities of the feet were as common during the dark ages as they are today, and since deformities of the feet occur very early, during adolescence, it is exceedingly difficult to find a normal foot among civilized people. If found it will usually be discovered that the possessor has not worn shoes during this period.

A good example of the effects of pressure in producing deformities of the feet, is seen in the ingenious devices for bandaging and deforming the feet of Chinese women. Flat-footedness and faulty weight-bearing is a national problem, and was a prevalent cause for unfitness in the army. This is a very important problem in civil life.

One factory of ready-made arch supports, claims to sell three thousand pairs each month,

to shoe stores. This shows the demand by the public. A geographical study of the distribution of the defects of feet, found by Examining Boards under the draft, revealed the fact that abnormal feet were comparatively rare in the Southern States, due to the practice of the rural part of this population in going barefoot.

In little babies, one frequently sees an apparent flat foot, when the foot is placed upon the ground, but in reality this is due to a pad of fat fitting in the arch, and is not a true flat foot. Where the true deformity is noticed, proper shoes, made on anatomical lines, will usually give very satisfactory results, without the use of arch supports. This fact is very well demonstrated in the Army and Navy, where no arch supports are used. The American Public Schools show that approximately seventy per cent. of the students have faulty weight-bearing lines, resulting in foot trouble; this is a very important question in relation to the efficiency of the race. It has been proven, when walking in high heels, that there is comparative inaction of the muscles of the legs and feet. This results in less nutrition and less perfect circulation through the legs and feet. High heels upset the architectural balance of the feet and legs, and the effects of the incorrect attitude are felt in the spine and pelvis; they induce and aggravate lordosis (or hollow back) and eventually cause flattening of the anterior arch.

Colonel Munson, M.C., U. S. Army, states: "The marching powers of the 'foot troops' are a most important factor in the conduction and success of battles and campaigns, and the Army which marches best, other things being equal, is the successful Army. Mobility is the key of military success, and troops which cannot march, will not be given, by a more vigorous enemy, opportunity to fight, except under what may prove to be decisive military disadvantage. The effect of badly fitting shoes, upon the psychology of the war, is very great. Even where the soldier is able to continue the march, the discomfort produced at every step soon reduces buoyancy of spirit, causes mental irritability, and materially diminishes fighting capacity."

This applies even to a greater extent in carrying out our duties in everyday life. Fortunately the deforming of the feet, from shoes producing such conditions as bunions, varicose veins, overriding toes, hammer toes, corns, callousities, in-

growing toe-nails, etc. (if in a mild degree), can be rectified by the wearing of anatomical shoes.

The pigeon-toe walk, which is very commonly seen in children, is generally a sign of weak feet, and upon examination the bulging of the inner side of ankles and the flattening of the arches, show very plainly that it is the foot, and not the attitude, that requires treatment. In fact, this attitude is Nature's method of really safeguarding against increasing deformity, which will correct itself when its cause is removed. This can be done by fitting proper corrective shoes, built along scientific lines. Shoes for an adult should be at least one-half an inch or more longer than the distance from the heel to the tip of the great toe. The shoe should be straight from the tip to the ball of the great toe and it is most important that the distance from the ball of the great toe to the heel, should correspond, in the shoe, to that in the foot. Most shoes are made of the same thickness over the ball of the great toe and little toe, which is not correct. Corns are the result of wearing improper shoes, and if the basic foundation or shape is correct, there is no reason for their existence. By wearing a properly shaped shoe, it makes little difference, other than seasonal, whether a high or low shoe is worn, except that the tendons are less hampered above the ankle in a low shoe, and there is free play, commensurate with shoe support. Button shoes are not desirable where real support is sought.

The detriment of a faulty shoe, to efficient functioning of the body has been stressed. The foot-sore man, woman, or child cannot, or is disinclined, to walk or exercise. Health-giving exercises promote circulation, respiration, digestion and elimination. Without it poor circulation, indigestion, nervousness, atony, lethargy, flabbiness, auto-intoxication, obesity and a train of other symptoms result, which the physician should do well to treat with shoes, and not with pepsin or digitalis.

The publications of the Life Extension Institute have emphasized the importance of this remedial measure and it has been even suggested that legislation, both national and state, be enacted, to make it a punishable offense for a shoe manufacturer to turn out a shoe not built on anatomical lines—one that will be responsible for

deformity or disability to the ignorant or unsuspecting purchaser.

There is no relation between the height of the arch and strength of the foot. The much abused high heel shoe is not always entirely to blame for foot troubles, although they are often monstrosities, anatomically and functionally ridiculous. With the pointed shoe it is even at times difficult to tell the right from the left, but under the salesmanship idea that they are "smart," "chic" and fashionable, or perhaps in this age of better hygiene, "in stock," they are readily sold. The more intelligent women will not have such a deforming shoe "put over" on her. The term, breaking in a shoe, is often used in connection with a new purchase, when in reality in the majority of cases it is the foot that is being broken down. There is no valid reason why a new shoe should cause any discomfort, and they will not, if built on proper scientific lines and properly fitted. Shoes made along the lines of the Munson Last are most excellent, and will meet the requirements of approximately eighty-five per cent. of the race. All shoes should be constructed on that idea, as the value of this has been proven during the world war. Properly shaped shoes are most desirable to avoid foot trouble, and it is not necessary nor desirable in the majority of cases, to use arch supports. The use of arch supports in most cases is harmful, and much better results are obtained by proper correction, and by the use of correct fitting shoes, along with graduated exercises.

The object of the shoe is to cover and to protect the foot. Therefore, the one should correspond with the shape of the other, but the shoemaker's foot, to which most lasts conform, is much narrower than the actual foot. Rubber heels should not be worn by young and vigorous individuals. Elasticity in gait is assured by the action of the calf muscles, not by a yielding substance beneath the heels.

By providing proper shoes for children, deformities will be prevented, as by inspection of the children's feet, it is shown that atrophy and compression begin at a very early age, and if protection could be assured during the period of rapid growth, serious distortion and diseases enumerated above, will be prevented.

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CLINICAL CLUES OF VALUE IN THE EARLY RECOGNITION OF PRE- TUBERCULOSIS*

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The most difficult task that confronts the physician, as Sir James McKenzie is fond of saying, is to recognize the buds and tendencies of disease. This is not only true as to the recognition of the pre-tuberculous stage of tuberculosis but is equally true in many, if not all, other diseases.

The art of differential diagnosis requires laborious mental concentration and effort to reason correctly. A single observation in the consulting room or at the bedside of a patient possesses only a relative degree of value and will not lessen the limitations of error that daily occur from hasty observation and faulty deductive reasoning. Nor will a single observation supplemented by examination enhance the value of the most essential requisite for one in the practice of medicine or surgery to attain—namely, clinical judgment.

If a greater degree of time were given to each case that comes under the physician's observation and a greater degree of humane interest manifested and shown each patient, the art of diagnosis would be elevated upon a higher plane, and our mental power of deduction would reach a higher degree of perfection, the errors due to omission and commission would become greatly reduced in number, and the science of medicine would rest upon firmer grounds and be supplemented by the art.

There is nothing so refining in its influence as good reading on any subject. It will sharpen the dullest intellect and put an edge on the keenest, as well, but it seems impossible to impress this upon physicians in this modern age of commercialism with the psychological opportunities it affords. The progressive and up to date rule is—take care of it now; if I do not my competitor will. If the physician and especially the surgeon could forget the dollar for one hour each day and devote this short space of time in searching the medical literature, be it book or periodical, for clinical clues of diagnostic importance, a highly profitable asset would be added to the knowledge already in his possession and his

natural aptitude in relation to diagnosis and clinical judgment would be greatly enhanced.

The clinical clues of value in the recognition of the incipient signals of disease will not be found or contained in any text-book of medicine. Every master clinician at home and abroad mentions some clinical clue which from his own personal observation and viewpoint possesses in a degree some clinical value. All medical works are egotistical either furtively or frankly. The subject matter emanates from the mill of the author's own brain while the knowledge possessed by others acquired through years of observation and experience much greater than their own receives only a passing reference. Some clinical clues of value have never been recorded in a medical book and if earnestly sought for by the physician may be frequently obtained by reading the current medical literature of this and foreign countries. Such clinical clues do not always emanate from the professors of instruction connected with medical universities or come from the more modern group—clinic affiliation of specialists, whose experience in many instances is extremely limited. They are observed, stored up, and given out by the general practitioner who has made application of his natural gift of mentality by giving the necessary time to observation and concentration of thought essential for one to perceive the signals of living pathology.

The ultimate object of medical science is prevention not cure. The ultimate aim of any curative system is to influence a morbid process while it is still in a stage when skillful interference will do permanent good. This applies to surgery as well as to medicine.

I believe that if we, as physicians, put forth greater efforts to improve that special sense of observation, *one of the rarest of qualities*, we will be able to recognize more frequently the incipient signals of disease that have heretofore and are at present escaping our attention.

When the tubercle bacillus appears upon the scene under the high power lens dressed in a robe of gentian or crystal-violet or clothed in a coat of fuchsin red, the pre-tuberculous stage of tuberculosis has escaped our diagnostic acumen and can usually be recognized by one or more of the physical signs elicited by auscultation and percussion, providing one's mental perception of the various degrees of tone pitch and sound has

*Read before McLean County Medical Society, Nov. 11, 1924.

been developed by intensive application and practice.

Let us remember that after all the five well-trained special senses are usually indispensable in detecting, in the words of McKenzie, the buds and tendencies of disease and in reaching a correct diagnosis when any morbid process has invaded and involved structure.

All of the great clinicians, past and present masters in the art of diagnosis, have attained such distinction by the development of their mentality. For this reason it would be well for us all to follow in the footsteps of the masters and not to be led astray from the path that has proven itself efficient in separating the chaff from the wheat and in permitting us to retain those kernels of knowledge which represent the highest degree of efficiency.

An English writer has said that the microbe—the seed—has ruled the past; the future is with the soil, the endocrine glands. I believe that there is more than a grain of truth in this statement. If we have the vision to see and the wisdom to look ahead, we will give more attention to this interesting field of study and by so doing we may be able to detect more frequently the incipient signals of disease and control their morbid tendencies with a greater degree of success than has been afforded to us by the older clinical methods of treatment.

Many of the clinical clues that I shall now call to your attention are within your possession and you have no doubt used them to advantage. You may be in touch with all that I shall mention. If this be true it is evident that you are still a student, which is a highly commendable attribute to the physician who is sensitive to those obligations and duties expected and required of one engaged in the practice of medicine.

With your indulgence I shall now present to you those clinical clues of value which are regarded by those whose experience entitles them to speak as being helpful aids in recognizing the pre-tuberculous stage of tuberculosis. In so doing I do not advance any single clinical clue as the result of my own personal observation. They have emanated from the master clinicians of the times and are not sectional in origin.

A constant succession of colds occurring in the same individual should never be regarded with indifference but looked upon with a watch-

ful eye and an apprehensive suspicion. It is a very suggestive clue of early tuberculosis and is the signal of vision as well as of wisdom for skillful interference by the physician. This is the one time, above all others, that affords the patient the greatest degree of hope and the physician the assurance that his professional advice and well directed efforts as to treatment will be crowned with a greater degree of success.

A constant succession of colds may be said to possess this degree of pre-tubercular importance—that it is positive evidence of a mode of life favorable to the ingress and growth of all aerial microbes. As a result of this invasion, the soil's vitality is depressed and natural resistance impaired which renders the child or adult an easy prey to the inroads of the bacillus of tubercle, which is cunning enough to recognize and to take advantage only when the lines of defenses are broken down and impaired.

Tachycardia.—In common with all other toxic agents the poison of tubercle has certain physiological effects. Of these, one of the most important and far-reaching is its relaxing effect upon the peripheral vessels. The tuberculous toxin is initially, above all things, a powerful vaso-dilator. This makes it very simple for us to understand, recall, and comprehend many of the phenomena of pre-tuberculosis which otherwise would appear difficult and obscure.

What is true of most of the other clinical clues is conspicuously true of tachycardia—namely, that it is by no means always present. In cases of active tuberculous lesions it is, of course, a prominent and constant symptom but in the very earliest stage of pre-tuberculosis there is no acceleration of the ventricular or pulse rate. Should it be discovered in connection with one or more of the other clinical clues it will be highly suggestive of this stage of the disease.

An unduly rapid pulse in an otherwise seemingly healthy person should always suggest tuberculous infection as its cause. When such a tachycardia is observed in young men, extreme care in defining its clinical significance should be observed. By assuming that excessive tobacco smoking in young men is the cause of such a tachycardia has frequently permitted errors in clinical judgment to occur.

In the very mild types of thyroid intoxication of the typical exophthalmus type or in the so-

called adenoma, of hyperthyroidism, tachycardia occurring in women from fifteen to thirty years of age may, at times, become exceedingly confusing as to its clinical significance and task one's diagnostic acumen to the very highest degree. Especially will this be true if the classical diagnostic tripod, exophthalmus, palpitation, and tremor, be not in evidence. There are fortunately, however, some helpful differential points that will lessen the possibilities of error and enable us to define with a greater degree of certainty the type under observation.

In the tachycardia of pre-tuberculosis, even in the presence of a temperature reading of 99 F. to 99.6 F., the basal metabolic rate is not likely to be increased but this rule is not infallible. However, *the blood pressure readings in tuberculosis are invariably low, there being but few, if any, exceptions to this rule.*

In the tachycardia of the toxic thyroid the metabolic rate will be found above the normal average in a fairly large per cent of such cases, but there will be at times exceptions to this rule. The sphygmomanometer readings will show a high diastolic pressure as well as a high pulse pressure if the virulence of the toxicity at the onset affects the cardiovascular system.

Every case coming under one's observation in which the chief complaint is nervousness with the statement from the patient that there is tachycardia on excitement or moderate exercise is the very first signal of the mild toxic thyroid and should be considered highly suggestive of hyperthyroidism until proven otherwise. Visible and palpable enlargements of the gland will be generally detected in these mild cases if diligently sought for.

Albuminuria.—Another clinical clue, the result of vaso-dilation caused by the toxin of tuberculosis, is albuminuria. Owing to the baso-dilative effect of the poison this passive congestion is very frequently observed to occur in tuberculosis. It is not, of course, suggested that all those who present the phenomenon of cyclical or postural albuminuria are necessarily pre-tuberculous, but the opinion has been advanced by one of the master clinicians abroad that the discovery of albumin in the urine of an adolescent which has not been voided immediately after exercise is a clue which should lead to a very minute examination for other evidence of tuberculosis.

Albumin will appear in the urine if the kidneys are in any degree passively congested, especially, if the patient is going about in the ordinary way—that is, the greater part of his time in the erect posture. This is a phenomenon with which many of us are familiar in the cyclical or postural albuminurias of adolescence. On the other hand it brings to many a physician visions of despair implicating the innocent kidneys. This should not occur, if one can but call to mind, that it is, in reality, due to want of tone in the muscular coats of the peripheral vessels giving rise to passive congestion in the renal area. In this “walkless age” and lack of general and regional exercise, nerve innervation and muscular tone are impaired which predispose to relaxation of supports and misplacement of viscera—factors which are highly conducive to passive congestion.

Dyspepsia.—Another clinical clue that is frequently observed to exist in the early or pre-tuberculous stage of tuberculosis is dyspepsia. It is the result of the action of the toxin which produces a relaxing effect on the peripheral vessels. The type of the dyspepsia is asthenic which is due to a faulty adjustment between the blood-pressure in the local areas. Extensive vaso-dilation disturbs the normal balance and diverts away from the gastric area that increment of blood which for the purpose of normal digestion is essential to it. The dyspeptic symptoms which so frequently announce the eruptive stage of tuberculosis are easy to understand. *The most lamentable fact is that we, as physicians, often forget to recognize their clinical significance.*

Always be suspicious of the asthenic type of dyspepsia occurring in early adolescence. Use your binocular vision in place of your ocular and in so doing an opportunity will be afforded you, using a slang expression, to put it over the gastroenterologist as well as over the army of operators who are endeavoring to acquire technique in place of trying to improve their clinical judgment.

Mental hebetude and muscular debility.—The two clinical clues, mental hebetude and muscular debility, are apparent in many other conditions besides tuberculosis. However, their continued presence in young people without a well defined obvious cause strengthens the number of clinical clues upon which the foundation for a reasonable suspicion may be entertained. A large number

of lethargic children, who have been reprimanded and punished for indolence at school when such causes as *eye strain, adenoids, and nasal obstruction*, can be excluded as responsible for such conditions, *owe their lack of energy and want of comprehension* to the relaxing effects of the tuberculous toxin. Furthermore, many who have reached the age of adolescence are classed as "psychoneurotics" or as "neurasthenics" when the resulting nervous exhaustion is due to the invasion of the bacillus of tubercle and the deleterious action of its toxin upon nerve and muscle.

A French physician has said in regard to people's mind, "All the world is cracked but some of us conceal the crack better than others and those of us who conceal it the best are very uninteresting creatures." Under these conditions it is not unreasonable to assume that the tubercle bacillus will be found in some of the many crevices and if we are alert we may bring him out from his place of seclusion.

Suppression of menstruation.—Another vasodilative phenomenon. Menstruation is brought about by the dilatation of the pelvic vessels coincidently with a contraction of the other systemic arteries. By administration of amyl nitrite or trinitrine the contraction of these arteries is prevented and in this case the menstrual flow does not appear. The elaborated toxin of tubercle acts in the same manner although its action is less powerful.

Amenorrhea is a common clinical clue of obvious tuberculosis and a signal possessing a high degree of clinical value in the early recognition of the pre-tuberculous stage of this disease.

Pyrexia.—Another physiological effect of the toxin of tuberculosis and one of the earliest clinical clues of pre-tuberculous invasion is the irritation of this poison upon the heat regulating centers of the brain and cord and the increased metabolic changes that result from its action. The most important signal being pyrexia, the fever of tuberculosis is one of the most interesting features of this complex disease.

As a rule it is slight and often escapes the attention of the most meticulous observer and although it is almost invariably present, it secretively shields its identity during the day and comes out from its hiding place only at night. It sometimes follows in the wake of a pyrexia due to some obvious and well defined cause and

seeks to conceal its true meaning by masquerading as a continuance of the initial complaint. *But the one diagnostic clue about the fever of tubercle is its persistence.*

In the early observation of a disease where the two cardinal symptoms of malaise and pyrexia are present every one of us was taught to suspect the invasion of the typhoid bacillus and the action of its elaborated toxin. It does not lessen the clinical significance to recall the saying of an eminent clinician, Dr. Maxon of Guy's Hospital, to the effect that if a candidate for an examination failed to include tubercle among the causes of continued fever he always referred him to his studies.

When using the clinical thermometer it is necessary to remember that for three or four days preceding a perfectly normal menstrual period a temperature of 99 F. to 99.6 F. may be frequently observed.

The technique of oral thermometry as practiced today is misleading and permits many errors in diagnosis as well as in clinical judgment to occur. Andrus and Walker of London in the American Review of Tuberculosis state that 71 per cent of tested persons failed to record their maximum temperature elevation by month, in five minutes, and 16 per cent failed to record their maximum in ten minutes. *Fifteen minutes by mouth* in temperate weather is necessary to insure *maximum readings*. Twenty-four per cent of patients with fever failed to record fever in five minutes by month, while 42 per cent failed to register fever in three minutes. *More time, and less haste*, will lessen our number of pitfalls in diagnosis and enhance the value of one's clinical judgment.

Kingston Fowler, one of the many brilliant English clinicians whose opportunities for observation in this direction are many, says that the *only form of pyrexia which can be regarded as pathognomonic of tubercle* is that in which the *morning temperature is higher than the evening*—a complete reversal of the readings observed and found in other infectious diseases.

There are only two types of pyrexia to my knowledge that may and do at times mimic and simulate closely the fever of tuberculosis and have permitted errors in diagnosis to occur: namely, that of enteric fever and syphilis. I just recently had under observation a young lady who had spent several weeks in a tubercular Sanito-

rium with a diagnosis of tuberculosis. Physical examination and the classical laboratory finding were both negative. The only exception from a clinical standpoint being a slight temperature ranging from 99 F. to 100 F. which had evidently been misinterpreted as to cause. But the stigmata of the spirochete and the earmarks of secondary syphilis were in evidence with the blood showing a four-plus Wassermann. This emphasizes that the interpretation of temperature requires of us to have in our possession and call to mind all of the causes that may influence the mercury to rise a degree or two if errors as to its clinical significance are to be overcome.

Physical characteristics.—To an undue irritability of the nervous system we may, I presume, attribute the psychical characteristics of most pre-tuberculous subjects. The sufferers from gross lesions are notoriously, unduly, and even pathetically optimistic in their mental outlook, but such is seldom the attitude of the pre-tuberculous. The environment surrounding the pre-tubercular patient is most forcibly conveyed and impressively defined by the French word *difficile*. They are rarely aggressive but occasionally there is to be noted an exception. Their disposition is erratic, and their higher centers lack self-control. They will not listen to reason, and they usually ignore any suggestion that their physician may offer them in their behalf, and they often try the tact and patience of a physician who is gifted with a sweet, kind, and considerate disposition.

This rapid fire change in manner and disposition when observed in a patient adds an additional link to the chain of evidence at hand, and when correlated in connection with the other clinical clues suggestive of tuberculosis affords confirmatory information of very anxious omen.

Anemia.—Trousseau, at the moment of his time the master clinician of France, was the originator of the following saying which has been attributed to many other physicians since his time—that an anemia which does not yield to iron is probably due to tubercle. The value of this practical lesson cannot be over-estimated. It refers to that type of anemia seen in young girls—namely, chlorosis. Blood examination reveals nothing to distinguish it from the blood picture of chlorosis. After excluding the many causes of secondary anemia, the most essential admonition for the physician to keep in mind

and the most important requisite for him to attain is that it should be distinguished and as early as possible.

Anemia of the soft palate. This is another clinical clue that has recently been advanced and emphasized as to its clinical value in the early recognition of pre-tuberculosis by Leonard Williams of England and one which is regarded by him as possessing a greater degree of merit and a higher degree of clinical importance than general anemia. This is the anemia of the soft palate with which all experienced throat specialists are familiar in all cases of laryngeal tuberculosis. This anemia frequently occurs quite independently of a general anemia and independently also of a definite laryngeal tuberculosis, according to this English clinician, and is one clue that from its ease of recognition should always be looked for. In the other two classical chronic diseases of the throat—namely, gout and syphilis, the soft palate instead of being ischemic and insensitive is almost invariably injected and irritable.

Any experienced throat specialist, whose power of observation is as keen as his operative desire and brilliant technique, will tell you that a pre-tubercular throat supports a laryngeal mirror with equanimity, while the gouty or syphilitic throat will often refuse to tolerate it until cocaine has been liberally applied.

Functional aphonia.—This is another clinical clue which has in the past been commonly and authoritatively described as one of the stigmata of hysteria but it is now being invested with a fresh clinical importance, inasmuch as it is looked upon and regarded by clinicians as one of the very earliest manifestations of pre-tuberculosis.

Dyspnea.—It has been well stated that a persistent dyspnea which cannot be positively assigned to a definite cause is almost certainly tuberculous. The dyspnea of the active or fully developed pulmonary lesion requires no explanation but the physician must remember that breathlessness is often observed in the early as well as the active stages of tuberculosis. It may be one of the earliest clues of tubercle and may be the first signal to announce the intercranial or abdominal type of this disease.

The one outstanding clinical clue or signal that should direct our attention, strengthen, as well as magnify our suspicion that breathless-

ness is of tubercular origin is that the most careful examination of the heart and lungs does not permit of a satisfactory explanation for its existence. It, therefore, becomes necessary to differentiate it from the other types of dyspnea in order to assign to it its true clinical significance. It is to be distinguished from the dyspnea of slight effort, which is so suggestive of functional high blood pressure, only by the observation of concomitant signs. If due to hypertension the readings on the sphygmomanometer will be high and auscultation will reveal an accentuation of the second sound at the aortic base, *the diagnostic clue as well as the key to hypertension is that the readings will be high.*

In the dyspnea of tuberculosis *low blood pressure is the predominating characteristic of tubercle* and the patient will generally be young, a clinical clue to keep in mind.

Bronchial glands. When the primary infection comes by the way of the air passages, the most frequent source of ingress, these glands constitute the first line of defense and the action of the tubercular toxin upon them may give an early reaction. As it is impossible to examine these glands during life by the methods of physical examination they may become enlarged to a considerable extent before a signal of such a condition becomes apparent. However, there are two clinical signs indicating this condition that should not escape our attention in examining a patient for tuberculosis—namely, *paresis of a vocal chord* and *inequality of the pupils*. In case of the chord it is generally the left chord on account of the anatomical disposition of the left recurrent laryngeal nerve. For some ill-defined and unexplained reason the paresis may involve and has been noted to occur in the right chord.

The inequality of the pupils, like many other of the clinical clues mentioned, can only be regarded as *tending to confirm a suspicion when aroused* as it occurs in perfectly normal persons. Our mental acumen in relation to the presence of enlarged bronchial glands may often be verified or disproved before the signs of pressure symptoms become obvious to the eye of the observer if we call to our aid the experienced roentgenologist and this we should more frequently do.

The bright eyes. There is a peculiar expression of the eyes frequently observed in subjects of tuberculosis. When once keenly observed it

is not soon to be forgotten. The characteristic and outstanding feature, as I have observed it, is *their intensified luster and brilliancy of expression*. While the appearance of the eye gives another valuable clinical clue, namely, that of preputial adhesions the expression of the eyes is altogether different from that observed in tuberculosis. The characteristic feature is its *notable staring look*.

I have been able on two or three occasions that I vividly call to mind to recognize the presence of tuberculosis in adults on this single clinical clue alone and the correctness of my suspicions as well as my mental deductions were verified later by the usual methods of physical examination. No satisfactory explanation of the cause of this clinical phenomenon upon the appearance of the eyes has been assigned. It is in all probability of reflex origin and may be due to a highly irritative action of the tubercular toxin upon the cerebro-spinal nervous system.

Ulnar Reflex. Another recent accessory diagnostic clue emanating from abroad and having the double merit of helpfulness and ease of application is the ulnar reflex regarded by Leonard Williams as a clinical clue possessing at times a high degree of value. The patient's forearm is bared and the arm placed in the flexed position with all of the muscles, especially the fingers, fully relaxed. If a pin be now sharply drawn along the whole length of the ulnar side of the forearm from elbow to wrist, in *most tuberculous cases*, the abductor minimi digiti will contract and cause a distinct wrinkling of the hypothenar eminence.

The response of the abductor minimi digiti while it cannot be called a pathognomonic clinical clue of tuberculosis may nevertheless be regarded as confirmatory evidence of the *strongest suspicion*. Like many other clinical clues there is a certain degree of ambiguity in connection with it. According to Williams when it speaks within certain limits it speaks true but when absent we must not allow ourselves to be lulled by its silence into a false sense of security.

Pleurisy. There is *one form of pleurisy* which is to be regarded with very apprehensive and grave anxiety from the moment of its onset—namely, *that type which comes on without pain, fever, or cough* or any of the signals which usually announce the onset of the ordinary clinical types which you have all observed in practice.

Physical examination reveals one pleura to be full of fluid. This insidious, cunning, and treacherous type of pleural effusion may follow some definite pulmonary disease or it may occur independently of any previous illness. The type under consideration is only occasionally met with but when it does occur *it invariably means tuberculosis*. Effusion whose announcement comes on with pain speaks for the benign or malignant types of this disease.

Exalted Sexual Appetite. French clinicians consider this clinical clue as being highly diagnostic of the pre-tuberculous stage of tuberculosis. The toxin of tubercle would seem especially in young men to exercise a very decide aphrodisiac influence. It is probably the action of the toxin which accounts for the unbridled gratification of passion so obviously evident in both sexes—the subjects of tuberculosis. Our reluctance as well as our modesty should not defer us from making such inquiry of the patient when our suspicions are aroused as to the presence of tuberculosis. It is the little elicited clues that strengthen the powers of mental deduction when correlated with those in our possession.

Opsonic Index. This clinical clue possesses a high degree of clinical value in the recognition of the pre-tuberculous stage of tuberculosis. It is one that is too frequently neglected in its clinical application. *The tuberculo opsonic index* does not in health fall below 0.8 or rise above 1.2. *Indices persistently above or below these levels point to tuberculosis.*

Von-Pirquet's Reaction. As the seed of tuberculosis is generally sown in the early years of life, it is our duty to be alert and to keep a watchful lookout for its appearance in the child. This clinical clue possesses value in children under ten years of age. In adults its clinical significance is misleading and of no practical value.

Calmette's Reaction. This has been discarded by most all clinicians. The same clinical information can be obtained by the Pirquet test without subjecting the patient to any danger upon the part of the eyes.

Injection of Old Tuberculin. This method is not advisable in febrile cases and should not *in any case be used* if the diagnosis can be made in any other way as it is not entirely free from danger. This test may, however, at times remove the doubt of uncertainty and permit the light

of knowledge to replace the elements of uncertainty. For this reason it does possess clinical value in the diagnosis of occult tuberculosis and at times its application should be made use of regardless of the slight risk that may occur.

This exhausts the clinical clues and data that I have in my possession for the detection and recognition of the pre-tuberculous stage of tuberculosis. Admitting that there are no one or two clinical clues mentioned that are absolutely dependable in the recognition of this disease, we must concede that the many signals, when properly placed, linked together and deliberately weighed in the higher court of reason, strengthen the chain of circumstantial evidence that we have brought together and permit a strongly suspicious conviction in many instances to become a positive reality.

The goal of hope in this disease is to recognize the buds and tendencies and to spray the seed, the tubercle bacillus, so effectively and efficiently with the skillful resources that we may have in our possession that the *full blown toxins of mixed infection* cannot retard the march of recovery.

Clinicians of the past—Past Masters in the Art of Diagnosis—while they could not in many instances define with any degree of certainty the etiologic factor present, could visualize the shadows and the outlines of living pathology in advance and before the advent of those recognized jewels of diagnostic aids, the microscope, the test-tube, and culture soil. Such a distinction must be and can only be attributed to the development and perfection of the special sense of observation.

That the clinical laboratory has brought to light many a hidden secret of disease and furnished us with many valuable diagnostic clues impossible for the eye to see or the mind to conceive, never dreamed of or entertained before, all must and will concede. But unfortunately the knowledge thus accrued and the benefits derived from same have to a notable degree retarded our individual progress in another and more important direction which is indispensable to the physician whose goal of endeavor is the realization of the highest accomplishment in life, the superlative blessing, the development of the mind.

As physicians, our great fault today is that we have become interpreters of laboratory findings and in a very large degree have ceased to become students of the *sick man*. The most plausible

reason for this condition from my own viewpoint I would assign as follows: Laboratory or direct methods of observation requires but little of one's time, a minor degree of effort, and no mental concentration to observe the characteristic end-reaction in a test-tube or the picture of a blood-film without the reaction as well as the picture under observation is *atypical*.

Clinical or the indirect method of observation requires a great deal of one's time, unceasing individual effort, and laborious mental concentration of the mind upon the part of the physician.

I believe that any physician who loves his profession above those sordid materialistic influences that have a decided tendency to retard individual effort and mental progress may, if he so desires, increase his diagnostic acumen in this disease, as well as in all other diseases, to a very high degree providing he will relinquish his own self ego and his presumption of superior wisdom and knowledge and not express his diagnostic conclusions for a day or two. During this interval, which should be one of deep thought and meditation, note down on paper, using a lead pencil for the convenience of the erasure, your mental deductions of the case under your observation, also, the limitations that are most likely to lead one in error. Then write down in ink *the mistakes that you have made under the same conditions*. Make three briefs. Take these to the *highest court of reason, weigh them each separately and collectively and cross examine them from every angle of approach*. Now hand down to the patient your final decision and you will find that your clinical judgment will not be open to criticism should the opinion of a distinguished internist be desired by patient or friends.

As physicians having been assigned to the highest calling with but one single exception that of working for the divine master, let us not betray such a trust. Henceforth, let us strive, as physicians, not to sacrifice any clinical method of obtaining knowledge at the expense of another but assign to each method of clinical investigation its relative as well as its real value and to make use of both methods in the office and at the bedside when the clinical indications indicate their application.

Unless we are always alert we will overlook the typical signals of disease and never discover the many *atypical clues* that possess at time a high

degree of clinical significance. "The wisest of us all become temporary blind to the obvious." "We do not see the forest for the trees." Limitations in diagnosis will never be entirely effaced or their number decreased until the eye is given time to see, the ear to hear, and the sense of touch, to perceive. Our temporary amaurosis of recognizing the typical as well as the atypical signs of disease can be guarded against and overcome to a large degree if we will call to mind and heed the advice given by the prince of clinicians, past and present, Sir William Osler, to a student who had failed to see enlarged glands on the opposite side of a patient's neck—namely: "to walk around and get another fresh point of view." Let us all walk around and by so doing we will lessen our mistakes in diagnosis, increase our mental efficiency as to precision in thinking and in observation, and we will all reach a higher degree of perfection in the art of diagnosis.

THE DOCTOR KNOWS LIFE'S ACTUALITIES

The doctor is altogether a special kind of a person, says the *Boston Transcript*. His illusions are few. His inside information is enormous, and if, now and then, he wears a superior smile, forgive him. He has probably just heard some remark which he knows to be fatuous or hypocritical. Again, his jokes are likely to be a bit technical, and his view of life materialistic. But if he has a brand of idealism, you can put your trust in it, for he has learned it in a hard school, and it is genuine. He has faced the worst, and can still believe the best. And if he has a religion, it will be worth coming at, for he wrested it out of the actual battles of good and evil in our common life seen at close range.

UNTREATED OR INADEQUATELY TREATED SYPHILIS

In the *American Journal of Syphilis*, Stokes and DesBrisay state that in an examination of about 413 cases of syphilis untreated, treated with small amounts of mercury and iodide by mouth, and treated by modern though inadequate methods, the following observations developed:

1. There is a spontaneous tendency to Wassermann negativity in untreated syphilis with lapse of time in human beings, which amounts to 30 per cent in the work of an ordinary diagnostic practice.

2. Wassermann negativity in the blood seems to be particularly an attribute of neurosyphilis.

3. There is an age duration gradient in the spontaneously progressive case which leads to ultimate complete serologic negativity in both the blood and fluid in time. This serologic negativity is not necessarily synonymous with symptomatic arrest. Seven and a half

per cent of 225 cases were symptomatically progressive in the face of complete serologic negativity.

4. Spontaneous arrest, symptomatic and serologic, occurred in less than 1 per cent of 208 untreated cases. Following treatment by mouth, 6 per cent were totally arrested and 10 per cent were serologically negative on blood and fluid.

5. Cutaneous and osseous syphilis appear to protect against, or are mutually exclusive of neurosyphilis.

6. There is evident that time is an essential element in the defense mechanism, which acts to retard rather than to prevent late or grave complications.

Society Proceedings

ADAMS COUNTY

Special Meeting, May 1, 1925

This was a special meeting of the Society called by the President at the request of six members. The request read as follows:

"To call a special meeting of the Adams County Medical Society on May 1, 1925, at 11:00 A. M. Purpose, for consideration of what is best for the interest of the Public and the desirability of making definite recommendations to the Board of Health."

(Signed)

J. A. KOCH,	E. ZIMMERMAN.
F. T. BRENNER,	T. B. KNOX.
J. R. POLLOCK.	FRANK COHEN.

The meeting was called to order at the Chamber of Commerce at 11:05 A. M. by the Chairman, Dr. C. D. Center, and the following members were present: Drs. J. W. E. Bitter, Pearce, Pollock, A. H. Bitter, Koch, Nickerson, Montgomery, Baker, Pfeiffer, Brenner, Cohen, Harris, Center, Swanberg, Reiffert, Collins, E. Zimmermann, Beirne, W. E. Mercer, Williams, Wells, Knapheide, Blomer, J. C. Steiner, W. Zimmerman, Germann-Sinnock, Jurgens, and Stevenson, there being a total of 28.

The President briefly told the reason for calling a special meeting. The Secretary read a communication that had been handed to him as follows:

"April 30, 1925.

"To the Adams County Medical Society:

Believing that it is for the good of our local hospitals and for the Public in general, we recommend that: The Adams County Medical Society endorse and recommend Dr. Frank Cohen to the Board of The Quincy Public Health District, for the appointment of District Bacteriologist for the coming year."

(Signed)

F. T. BRENNER.

Dr. Brenner made a motion that the above resolution be adopted. Seconded by Dr. Montgomery. This was followed by a lengthy discussion, the following members taking part in the discussion: Drs. Nickerson, Pollock, A. H. Bitter, Koch, Pearce, Beirne, Montgomery, Center and Baker, which finally resulted in the resolution being adopted by

a vote of 15 for and 6 against. Dr. Koch made a motion that the President give out the publicity of the meeting. This was seconded, but Dr. A. H. Bitter made a substitute motion that Dr. Koch, as chairman of the Public Health Committee, give out the publicity. Seconded and carried. Dr. Pearce spoke of the advisability of having the publicity concerning the convention given out by him. Dr. Swanberg thought it would be wise for the Society to go on record, at this time, delegating some one to give out the publicity of each meeting that was held, and to have the exclusive authority to do this regularly, unless some other individual was especially authorized to give out the publicity for any particular meeting. Dr. Brenner incorporated this thought in a motion which was seconded by Dr. Stevenson and carried.

Dr. Koch called the attention of the Society to the fact that a very obnoxious chiropractic bill was at present before the Illinois Legislature, and that it was imperative that our representatives in this district be informed this week-end, to be sure to vote against it when it came up for final consideration in the General Assembly next week. Dr. Swanberg made a motion that the Legislative Committee be given full power to take such action as they wished, to assure our representatives of this vicinity being fully informed of this Society's opposition to this measure. Seconded and carried.

The Secretary read an invitation from the Lee County (Iowa) Medical Society to come to their meeting at Keokuk on May 7. He also called the attention of the members to the desirability of placing their orders at this time for the new A. M. A. auto emblem.

Adjournment was made at 12:00 o'clock noon.

HAROLD SWANBERG, M.D.

ADAMS COUNTY

May 11, 1925

This was the regular meeting of the Adams County Medical Society held at the Chamber of Commerce and was called to order about 8:25 P. M. with the President in the chair. Dr. C. C. Rogers of Chicago being the only guest, made a total attendance of 39.

The Secretary read the minutes of the April meeting and the special meeting held on May 1. Dr. Beirne made a motion that a certain portion of the April minutes be omitted due to the fact that a motion was made and not seconded. This motion was seconded and carried. The President then ordered, with the exception of the above correction, the minutes stand approved as read. Dr. Koch reported for the committee on Public Health and Legislation and stated that he arranged for a series of speakers in the public schools during Public Health Week and also stated what had been done to combat the Chiropractic Bill that was at present before the Illinois State Legislature. Dr. Pearce, McReynolds, Irwin, Bowles and Wells spoke on the various phases of the Illinois State

Medical Society convention. Dr. McReynolds presented a transfer card of Dr. C. R. Bates from Omaha, Nebraska, for membership in the society. This was ordered turned over to the Board of Censors. Dr. Swanberg read for the first reading a proposed change in the By-Laws of the society to the effect that Article I of the Appendix, which pertains to the order of business, read as follows: "The Order of Business shall be as follows, at the annual and monthly meetings." 1. Call to order. 2. Reading of regular essays and clinical reports. 3. Reading of minutes of last regular meeting and of any special meeting, since the last regular meeting. 4. Reports from committees. 5. Unfinished business. 6. Reading of business correspondence. 7. New business. 8. Reading of applications for membership. 9. Report of the Censors. 10. Voting on candidates for membership. 11. Report of the officers at the annual meeting. 12. Election of officers. 13. Reading of scientific correspondence. 14. Reading of volunteer essays and clinical reports. 15. Announcement. 16. Adjournment.

The object of this change in the By-Laws was stated as being for the purpose of having the regular scientific program first instead of the business. It was thought that this change in the By-Laws will prove a great inducement for our out-of-town members and physicians in neighboring towns to attend our meetings, due to the fact that they could get away earlier and would not be burdened with listening to our business discussions in which they might not be interested.

Dr. C. C. Rogers of Chicago, Associate Professor of Surgery in the College of Medicine, University of Illinois, gave a stereopticon talk on the "Treatment of Injuries to the Skull and Brain," which proved very interesting. Dr. Rogers' paper was discussed by Drs. Miller, Koch, Williams, Steiner, Jurgens, Montgomery and Baker and finally closed by Dr. Rogers himself. Dr. Cohen and Dr. Baker gave an interesting case history and demonstrated a pathologic specimen of a case of "Aneurysm of the Popliteal Artery." Dr. Center asked to be excused from giving his case report that had been assigned to him for this meeting. Dr. Koch made a motion that we extend Dr. Rogers a rising vote of thanks for coming to Quincy to address the society. Seconded and carried. The President called the attention of the membership to the excellent Convention Number of the Quincy Medical Bulletin and stated that it was something that the society and every member should feel proud of. Dr. A. H. Bitter made a motion that we extend the Secretary a rising vote of thanks for the efforts he had put forth to get out this number. Seconded and carried. The Secretary thanked the members for their appreciation of his efforts and stated that he regretted because of insufficient finances, we were unable to send a copy of the Convention Number to every physician in the State, as was originally planned. However, copies of the Bulletin had been sent to the President and Secretary of every county society in Illinois, as

well as all the special societies, enclosing with each copy a printed card reminding them not to fail to induce the members of their society to come to Quincy to attend the convention next week. Copies were also sent to the President and Secretary of all the county societies in the states of Missouri and Iowa with a card enclosed inviting them and their members to attend. Dr. Caddick asked how many orders had been received for the new A. M. A. Auto Emblem. The Secretary stated that 32 had already sent in money for the emblem and about 30 of that number specified that they would pay the additional cost if one was secured with the name of the Adams County Medical Society on it. Dr. Miller made a motion that the society adopt the new A. M. A. Auto Emblem as the official emblem for the society and that the society order 50 emblems with the name of the Adams County Medical Society placed on them, these emblems to be sold to the membership, the society Treasury being reimbursed for the expenditure as rapidly as the emblems were sold. Seconded and carried.

Adjournment was then made about 11:20 P. M.

HAROLD SWANBERG, M.D.,

Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Diagnostic Clinic, May 13, 1925

The Diagnosis of Acute Surgical Abdominal Lesions Allen B. Kanavel
Talk on Phases of Abdominal Surgery.....
...J. Basil Hall, President British Medical Society
The Treatment of Acute Surgical Abdominal Lesions A. J. Ochsner

HENRY COUNTY

Tuesday, May 12, at 4 P. M., over one hundred doctors from Henry County and surrounding towns assembled in the lecture room of the Public Library, Kewanee, Illinois, to listen to one of the most interesting scientific programs rendered here in many a day.

The first paper was given by Dr. Dean Lewis, professor of surgery, University of Illinois, professor-elect of surgery, John Hopkins University, on "Bone Tumors." The second paper was given by Dr. Charles A. Elliott, professor of internal medicine, Northwestern University Medical School, on "Chronic Cholecystitis." The last paper was given by Dr. Allen B. Kanavel, professor of surgery, Northwestern University Medical School on "Differential Diagnosis of Appendicitis, Peptic Ulcer and Gall Bladder Disease."

At six o'clock the meeting adjourned to the Kewanee Club Rooms where a banquet was served in honor of Dr. Lewis, who, as a former Kewanee boy, entered the medical profession and has so recently been honored by appointment to the Chair of Surgery, at John Hopkins University, Baltimore.

There were more than one hundred plates spread

for the banquet. Several business men, friends of Dr. Lewis, were present also as guests of the Henry County Medical Society. A very elaborate musical program, rendered by Kewanee artists, was a feature of the evening. Toasts, under the direction of Dr. John H. Oliver, Kewanee, as toast master, were given by Dr. Allen B. Kanavel, Dr. Chas. A. Elliott and Mr. Leo H. Lowe, Editor of "Kewanee Star-Courier" and a lifelong friend of Dr. Lewis'.

The Henry County Medical Society presented Dr. Lewis with a fine traveling bag in recognition of his many services to them as a society. Indeed the scientific program and the evening banquet were both fitting tributes paid by the old home town to one of her deserving sons."

C. P. WHITE,

Secretary, Henry County Medical Society.

McHENRY COUNTY

Meeting of the McHenry County Medical Society held at Woodstock, Illinois, May 8, at which there was a large attendance. The officers elected for the ensuing year were:

Dr. W. H. Bailey, Hebron, president; Dr. C. F. Bascus, Woodstock, secretary.

The Doctors were interested in vetoing the Chiropractic Bill which is now before the House at Springfield, Illinois, and a unanimous vote was made in favor of sending each of the representatives of this District a telegram expressing the wishes of the Society in voting against this bill.

A very interesting paper was read by Doctor Frank D. Moore of Chicago on preventive surgery.

C. F. BASCUS, M. D.,

Secretary.

WILL-GRUNDY COUNTIES

The Will and Grundy County Medical Societies have united and formed the Will-Grundy Medical Society.

Weekly meetings have been held since the first of the year. The speakers include Drs. Julius Hess, B. H. Moore, Carl Davis, Wilbur Post, S. J. McNeill, all of Chicago; Dr. Ball of the State Health Department; Mr. Ginty, vice-president of the Fort Wayne Medical Protective Co., and also Drs. Alfred Houston, Raymond Brown, H. N. Flexer and L. B. Andrews, all of Joliet.

Our attendance has been between twenty and fifty at each meeting.

The meetings are now discontinued for the summer months.

GEORGE H. WOODRUFF, M. D.,

Secretary.

Marriages

HAROLD FONSECA DA COSTA to Miss Elizabeth Zulfer, both of Chicago, May 6.

ALFRED P. MERIWETHER, St. Jacob, Ill., to Miss Lavona Collins of Edwardsville, March 3.

PAUL G. POMEROY, Marengo, Iowa, to Miss Ottilie Scherer of Chicago, recently.

SYDNEY S. SCHOCHETT, Chicago, to Miss Rosalind Bael of New York, April 7.

ROBERT MAGE SUTTON, Peoria, Ill., to Miss Margaret Livingston Bailey of Pekin, April 24.

Personals

Dr. Willis B. Young, St. Louis, addressed the Madison County Medical Society, Edwardsville, May 1, on "Large Ovarian Cysts."

At the annual meeting of the Chicago Council of Medical Women, Dr. Mary E. Hanks was elected president, and Dr. Florence D. Johnston, secretary.

Dr. George H. Simmons, Editor and General Manager Emeritus of the American Medical Association, recently returned to Chicago after a tour of almost ten months through India, China and Japan.

Dr. Lester R. Dragstedt, professor of physiology and pharmacology, Northwestern University Medical School, addressed the Chicago Society of Anesthetists at the Morrison Hotel, May 26, on "The Mechanism of Surgical Shock."

Dr. William C. Woodward, executive secretary of the Bureau of Legal Medicine and Legislation, American Medical Association, addressed the Chicago Society of Industrial Medicine and Surgery, May 4, on "The Medical Profession and Workmen's Compensation Laws."

Mr. J. Basil Hall, President of the British Medical Society, was guest of honor at a dinner given by the Chicago Medical Society at the Hamilton Club, Wednesday evening, May 13, at 6:00 p. m., preceding the meeting of the Society.

Dr. Erwin P. Zeisler was recently elected a member of the American Dermatological Association and president of the Chicago Dermatological Society.

Dr. Frank Smithies, professor of medicine, University of Illinois, delivered the address in medicine at the annual meeting of the Kansas State Medical Society, May 6. Dr. Smithies spoke upon "The Modern Conception of Peptic Ulcer and Results Following Non-Surgical Management by the 'Physiologic Rest' Method." His resignation from the position of physician in chief and head of the department of internal medicine at St. Elizabeth's Hospital, Chicago, was recently announced.

News Notes

—Ground was broken, May 8, for the construction of five of the six buildings that will house Northwestern University's schools, to be erected at a cost of \$5,350,000, on McKinlock Memorial Campus at Lake Shore Drive and Chicago Avenue. Among the speakers at the ceremony were Mayor Dever of Chicago; Robert W. Campbell, president of the board of trustees; Elbert H. Gary, of the U. S. Steel Corporation, and Walter Dill Scott, president of the university. Those who made possible the construction of the buildings are: Mrs. Montgomery Ward, who gave \$3,000,000, for the medical-dental center; Mrs. Levy Mayer, \$500,000 for the law school building; William A. Wieboldt, representing the Wieboldt Foundation, \$500,000, to complete the school of commerce; George A. McKinlock, \$500,000, which made possible the purchase of the campus; Mrs. George R. Thorne, \$250,000, to erect an auditorium, and Elbert H. Gary, \$100,000 for the Gary Law Library.

—Construction has begun on the \$225,000 addition to the St. Francis Hospital, Freeport.

—The excavation for the new Madison County Tuberculosis Sanitarium has been completed, and construction work is under way.

—Ground has been broken for a 325-bed Veterans' Bureau Hospital at Great Lakes, to be erected at a cost of \$809,000, for the treatment of neuropsychiatric cases.

—A sanatorium, which will accommodate 100 tuberculosis patients, is being constructed for Madison County at Edwardsville at a cost of \$175,000, the citizens having voted a tax of 1.5 mills to continue over a ten-year period.

—Beverly Farm Home and School for Nervous and Backward Children, Godfrey, is undergoing improvements, including the addition of a dispensary and small hospital department. Its capacity will be increased to care for about twenty more children.

—Contracts have been let for the new Mount Sinai Hospital, Chicago, which will have 300 beds. The building will be five stories high, constructed so as to permit the addition of six stories.

—The Chicago Surgical Society held a symposium at the Alexian Brothers Hospital, May 1. Dr. Arthur Dean Bevan speaking on "Tumors of the Breast;" Dr. Kellogg Speed, "Tumors of

the Male Breast," and Dr. Emil G. Beek, "What Should Be Done With the Advanced and Recurring Cancer of the Breast." The discussion was opened by Drs. Dean Lewis and Vernon C. David.

—The Illinois Department of Public Health states that there were 126 cases of smallpox reported in Massachusetts, 2,265 in New York, and 26,352 in Illinois in the six years ending Dec. 31, 1924. A compulsory vaccination law is enforced in Massachusetts and in cities of the first class in the state of New York. Vaccination in Illinois depends largely on moral suasion; there are many unvaccinated persons and much smallpox.

—The dedication and official opening of the British Old People's Home, Twenty-ninth Street and McCormick Avenue, Hollywood, erected at a cost of more than \$250,000, took place May 24, at 2:30 p. m. Mr. Samuel Insull will preside. Judge Holdom and the British Consul General, Mr. H. A. Richards, will give addresses.

—The construction of the first unit of the new Chicago Memorial Hospital at Thirty-third Street and Groveland Park, will begin this summer. It will accommodate 100 patients. The cost, about a half million dollars, has been pledged, as has an equal amount for endowment. The new building will face Lake Michigan and have 640 feet frontage on Groveland Park.

—Following a hearing, May 6, before representatives of the federal prohibition office, the liquor licenses of twenty-three physicians and druggists of Lee and Ogle counties were revoked. The charges were that the prohibition regulations with regard to filling prescriptions had been violated, and that prescriptions had not been issued and filled in good faith.

—At the last meeting of the Chicago Ophthalmological Society, May 18, Dr. Forrest J. Pinkerton, Honolulu, gave an address on "Eye Complications of Leprosy." There were discussions on glaucoma by Drs. Harry W. Woodruff, Joliet, Ill., Ephraim K. Findlay and Marshall Goldenberg, and another by Drs. Edward V. L. Brown and Hallard R. Beard.

—The state director of health reports that rabies has been endemic in animals for years in that part of Illinois known as "Little Egypt," and that it is gradually extending north. More than twenty-five persons in fifteen counties have been attacked by rabid dogs since January 1.

one as far north as Fulton County. No case of rabies has been reported in man this year, all exposed having taken the antirabic treatment. Twenty dogs and one cat examined (no two from the same locality) have shown the presence of rabies this year.

—The board of trustees of the University of Chicago announced, May 19, the establishment of the Douglas Smith Foundation for Medical Research, which makes available the income from about \$1,000,000 to be used exclusively in the payment of stipends or salaries of members of the staff or fellows of the university engaged in medical research and expenses directly incident thereto. The donor, Douglas Smith of Chicago, has already turned over to the university securities valued at \$800,000 and intends to turn over the remainder of the gift in 1925.

—The current issue of the *Quincy Medical Bulletin* is dedicated to the diamond jubilee celebration of the Illinois State Medical Society and the Adams County Society, both of which were founded in 1850, to be held in Quincy, May 19-21. It contains the program in detail, the list of exhibitors, a descriptive directory of the city of Quincy, and a brief history of the Adams County Medical Society and the state medical society, with short bibliographies and halftones of the early officials. There is also a hitherto unpublished paper on the cholera epidemic of 1849-1851 by the late Dr. Francis Drude, who was president of the Adams County Medical Society in 1881 and 1882, besides a list of members of the society and descriptive pages of hospitals and laboratories in Adams County.

—There are 10,977 cases of pulmonary tuberculosis under medical supervision in Chicago, according to Dr. Jacob J. Mendelsohn, physician in charge of the Stock Yards Dispensary of the Municipal Tuberculosis Sanitarium. Of this number 2,541 are under the care of private physicians. Beds available in tuberculosis institutions in the vicinity of Chicago total only 2,268. A large part of the tuberculosis problem rests therefore on dispensaries. There are eight full-time Municipal Tuberculosis Sanitarium dispensaries in the city, having twenty-three physicians and 135 field nurses, who cooperate with the health department, physicians, employers and other recognized agencies. The number of new cases examined is increasing, having been in 1920, 16,500; 1922, 31,854, and 1924, 32,460.

Deaths

WALTER H. ALLPORT, Chicago; Chicago Medical College, 1887; member of the Chicago Surgical Society; formerly on the staffs of the Alexian Brothers' Cook County and St. Luke's hospitals; at one time surgeon to the Illinois Central Railroad; served during the World War; aged 62; died, April 21, at Marseilles, France.

CHARLES F. BOWEN, Chicago; Rush Medical College, Chicago, 1889 member of the Illinois State Medical Society; aged 65; died, April 16, of chronic nephritis and uremia.

PATRICK MAURICE BURKE, La Salle, Ill.; Medical Department of Columbia College, New York, 1880; formerly member of the board of education; aged 70; died, March 28, of pneumonia.

HENRY L. BURNETT, Raleigh, Ill.; Missouri Medical College, St. Louis, 1881; aged 76; died, April 21, of carcinoma.

WILLIAM M. EDDLEMAN, Anna, Ill.; University of Tennessee College of Medicine, Memphis, 1882; member of the Illinois State Medical Society; formerly health officer and mayor; aged 67; died April 1, of aneurysm of the abdominal aorta.

JAMES D. HART, Vienna, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1885; St. Louis College of Physicians and Surgeons, 1889; formerly a druggist; aged 66; died, April 7.

GEORGE WASHINGTON MARKLEY, Belvidere, Ill.; Illinois Medical College, Chicago, 1904; member of the Illinois State Medical Society; aged 55; died, April 8, of cerebral hemorrhage.

HENRY M. MARKS, Champaign, Ill.; Jenner Medical College, Chicago, 1896; aged 61; died, April 17, at the Burnham Hospital, of lobar pneumonia.

PETER GUSTAVE PETERSON, Zion, Ill.; Bennett Medical College, Chicago, 1914; aged 53; died April 10, at the Henrotin Hospital, Chicago, of heart disease, following an operation for gallstones.

REUBEN SCHURTZ, Streator, Ill.; University of Michigan Medical School, Ann Arbor, 1876; member of the Illinois State Medical Society; aged 72; died, April 11, at Miami, Fla., of lobar pneumonia.

E. C. SWEET, Chicago; Hahnemann Medical College and Hospital, Chicago, 1884; formerly on the staff of the Masonic Orphans' Home; aged 79; died suddenly, April 19, of heart disease.

JAMES HULBERT VADAKIN, Bethany, Ill.; Kentucky School of Medicine, Louisville, 1891; aged 64; also a druggist; died, April 27, of nephritis.

MASON FRANKLIN WOODS, Waverly, Ill.; St. Louis University School of Medicine, 1908; aged 45; died, March 30.

EUGENE E. HESTER, Paxton, Ill.; Eclectic Medical Institute, Cincinnati, 1899; member of the Illinois State Medical Society; aged 53; died April 28, of arteriosclerosis.

JOHN H. VEATCH, Marine, Ill.; Hering Medical College, Chicago, 1898; a member of the Illinois State Medical Society; aged 64; died, May 9, at St. Joseph's Hospital, Highland.



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